Fourteenth annual report of the Wisconsin Agricultural Experiment Association with Fourth annual report of Alfalfa Order. Address of president, secretary's report with papers and addresses given by me...

Wisconsin Agricultural Experimental Association
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FOURTEENTH ANNUAL REPORT

OF THE

Wisconsin Agricultural Experiment Association

With Fourth Annual Report of

ALFALFA ORDER

ADDRESS OF PRESIDENT, SECRETARY'S REPORT WITH PAPERS AND ADDRESSES GIVEN BY MEMBERS OF THE ASSOCIATION AND OTHERS INTERESTED IN PROGRESSIVE AGRICULTURE

COMPILED BY

R. A. MOORE, *Secretary*

MADISON, WIS.
CANTWELL PRINTING CO., STATE PRINTER
1916

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LETTER OF TRANSMITTAL

WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION.

MADISON, WIS., 1916.

To His Excellency, EMANUEL L. PHILIPP,

Governor of the State of Wisconsin:

Sir—I have the honor to submit for publication, as provided by law, the Fourteenth Annual Report of the Wisconsin Agricultural Experiment Association, showing the receipts and disbursements the past year, also outlines for experiments, and addresses and discussions given at the annual meeting at Madison, February 11, 12, 1916.

Respectfully submitted,

R. A. MOORE,

Secretary.

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ALFALFA SESSION

OFFICERS, 1916

President.....HENRY MICHELS, Malone
Vice President.....J. R. THORPE, Tavera
Secretary.....R. A. MOORE, Madison
Asst. to the Sec'y.....J. J. GARLAND, Madison
Treasurer.....H. E. KRUEGER, Beaver Dam
Clerk and Stenographer.....CLARA BRABANT

COMMITTEES

Executive:

Geo. W. Davies.....North Freedom
T. R. Thorpe.....Tavera
A. L. Stone.....Madison
Jesse Van Natta.....Dodgeville
Frank Bell.....Columbus

Officers of Association, Ex officio:

Resolutions:

J. B. Cheesman.....Racine
C. P. Norgord.....Madison
H. E. Krueger.....Beaver Dam

Finance:

C. P. Norgord.....Madison
H. N. Longley.....Dousman
H. E. Krueger.....Beaver Dam

Coöperative Experiments:

Farm Crops.....R. A. Moore
Soils.....A. R. Whitson
Farm Engineering.....F. M. White
Agricultural Chemistry.....E. B. Hart
Agricultural Extension.....K. L. Hatch
Farm Management.....D. H. Otis

CONSTITUTION AND BY-LAWS

CONSTITUTION

Article I.—Name.

This organization shall be known as the Wisconsin Agricultural Experiment Association.

Article II.—Object.

The object of this association shall be to promote the agricultural interests of the state.

1st. By carrying on experiments and investigations that shall be beneficial to all parties interested in progressive farming.

2d. To form a more perfect union between the former and present students of the Wisconsin College of Agriculture so as to enable them to act in unison for the betterment of rural pursuits in carrying on systematic experiments along the various lines of agriculture;

3d. By growing and disseminating among its constituency new varieties of farm seeds and plants;

4th. By sending literature bearing upon agricultural investigations to its membership, and

5th. By holding an annual meeting in order to report and discuss topics and experiments beneficial to the members of the association.

Article III.—Membership.

Section I. All former, present and future students and instructors of the Wisconsin College of Agriculture shall be entitled to become members of this association.

Section. II. Honorary membership may be conferred upon any one interested in progressive agriculture by a majority vote at any annual or special meeting of the association.

Article IV.—Dues.

A fee of fifty cents shall be collected from each member annually.

Article V.—Officers.

The officers of this association shall consist of a president, vice president, secretary, and treasurer, whose terms of office shall be one year or until their successors are elected.

Article VI.—Duties of Officers.

Section I. It shall be the duty of the president to preside at all meetings of the society and enforce the observance of such rules and regulations as will be for the best interest of the organization; to appoint all regular committees as he may deem expedient for the welfare of the association.

Section II. In the absence of the president, the vice president shall preside and perform all duties of the president.

Section III. It shall be the duty of the secretary to keep all records of the association; to report the results of all coöperative experiments carried on by its membership and the experiment station, plan the experimental work for the members of the association, and labor for the welfare of the society in general.

Section IV. The treasurer shall collect fees, keep secure all funds of the association and pay out money on the written order of the secretary, signed by the president. He shall furnish bonds in the sum of two thousand dollars with two sureties, for the faithful performance of his duties.

Article VII.—Amendments.

This constitution may be amended at any annual meeting by a two-thirds vote of the members of the association present.

Amendment No. 1.—Adopted Feb. 9, 1906.

Any person residing within the state having completed a course in agriculture in any college equivalent to that given by the Wisconsin University, may become a member of this association under the same regulations as students from the Wisconsin College of Agriculture.

Amendment No. 2.—Adopted Feb. 11, 1909.

Any County Agricultural School within the state may be admitted to membership of the Experiment Association upon request by the principal of such school and the payment of an annual fee of $1.00.

BY-LAWS.

Article I. The officers of this association shall be elected by ballot at the annual meeting.

Art. II. The president and secretary shall be ex officio members of the executive committee.

Art. III. This association shall be governed by Roberts' Rules of Order.

Art. IV. All members joining at the organization of this association shall be known as charter members.

Art. V. The time and place of the annual meeting shall be determined by the executive and program committees.

Constitution adopted and organization effected Feb. 22, 1901.

Wisconsin Experiment Association's exhibit at the Panama-Pacific Exposition.

The exhibit was displayed with the Experiment Association's pure bred grain show and the Dairy Exposition at the University, February 7–12, 1916.

Fourteenth Annual Report

OF THE

Wisconsin Agricultural Experiment Association

PRESIDENT'S ANNUAL ADDRESS

HENRY MICHELS, Malone

It is a privilege of which I feel very proud, to call to order this 15th annual meeting of the greatest agricultural association in the world. The Experiment Association is no experiment. For 14 years it has been developing and expanding and accomplishing things which many, many times exceed the most sanguine expectations which its founder, our worthy Prof. Moore, could have had in the beginning. For 14 years it has been expending its tremendous energy through one single channel. For 14 years we have been distributing choice seeds all over the state until today Wisconsin grows more pedigreed seeds than all other states combined. Our seeds have found their way into other states and other countries and the demand for them is constantly increasing because they have made good. In the fields they have been most profitable. In the show ring they are undefeated. The Experiment Association has earned for the state its justly deserved title—"The Seed Producing State Of the United States and For the United States." A membership of 1500 specially trained active farmers directed by a man of Prof. Moore's ability is a combination that knows no failure. While others have been planning and boasting what they are going to do, the Experiment Association has been actually doing things which have made an impression on the whole world; and the whole world has profited.

The breeding and dissemination of bigger crop producing seeds is an undertaking in which every farmer is directly interested. Whether the product he finally markets be grain or live stock or dairy products, his first problem is to make every acre of his land yield the greatest possible returns.

When the association undertakes to supply the world with seeds it assumes a grave responsibility and every member must be willing to bear his share of that responsibility. Upon the intelligence and thoroughness of our work depends the increase or the decrease in the production of millions of acres of high priced land. The realization of this should at all times keep us fully awake to the fact that selling seeds is a transaction that calls for the highest degree of honesty and intelligence. In spite of all laws which may be enacted to protect the purchaser, the seed business will always be one in which the character of the seller is one of the most important factors. In all our dealings let us give ample evidence that confidence in our honor is not misplaced. Directly or indirectly, the association is responsible for every sale that is made, and any member who fails to live up to the highest standards injures not only himself, but casts a shadow over the whole association. Farmers learn of the excellent qualities of our seeds through the results achieved by the members with them. They know that the association furnishes the members only with the purest seeds and buy of them in preference to others for that reason. This confidence which the public has in us and in our seeds is the most valuable asset we can possess, but it is one that can easily be irretrievably lost. A single act of bad faith on the part of a member is a greater damage to the reputation of the general membership than a hundred members can repair by conscientious dealing.

Quality must ever be our watchword. This season, more than ever, because of the high prices prevailing for most seeds, there will be the temptation to slip in an inferior article now and then, thinking that it will be excused because of the shortage of choice grades. But this is the time of all times when we must demonstrate to the world beyond all doubt that our association stands for the best and only the best. We must show that in times when others fall down the Wisconsin Experiment Association will not deviate one hair's breadth from its straight course in order to gather in a few extra dollars.

Coöperation is the popular cry of the day and the movement for good seeds will be much advanced if the members will coöperate freely with one another and with the officers. Not only must there be no unfriendly competition between

the members but there must be entire freedom from selfishness. A boost for the association or for a fellow member is a boost for the booster. In general we should concern ourselves more about the affairs of the association. In the past we have left all of the work to our secretary, and while he has handled it in faultless fashion, his ever increasing duties would be made much lighter if members were always ready to lend a helping hand. Our duty does not end when we we have paid our membership fees. That, in fact, is the smallest part of it. We must thoroughly acquaint ourselves with everything that is being done so that we may become not only more efficient ourselves, but so we shall be able to discuss the purposes and accomplishments of the association anywhere and everywhere. Our annual report is published for the express purpose of keeping members fully informed and each one of us should make it a point to read this report from cover to cover.

In our correspondence we should identify ourselves with the association in every way possible. The adoption of a standard association shipping tag was a big step in the right direction. It would be an excellent thing if we had small cuts made of our trade-mark which could be loaned to the members to be printed on their letterheads, billheads and envelopes. It would be a benefit to all concerned if the office could furnish each member with a supply of small printed sheets which could be enclosed with all correspondence. This sheet would give general information concerning the objects of the association, the qualifications of the members, what it has done and what it proposes to do. The time has come when it would be a good plan to do some coöperative advertising in general farm papers. The treasury of the association has not sufficient funds for bearing the whole cost of an advertising campaign, but a plan might be worked out whereby the association would meet only part of the expense and the shippers of seeds the balance.

There is another reason why members should keep in close touch with the work of the association. Preparedness for national defense is the talk of the day and preparedness for the defense of our association is a subject which may well merit our consideration. This is not a pleasant thought, but we have no assurance that the unruffled waters in which we have been sailing so smoothly will always be calm. There

has never been any movement of great importance which has not aroused plenty of enemies and the pure bred seed movement is no exception. There are those whose business is affected by the enormous sales made by our members. There are those who would find fault for the purpose of creating political capital. And there are those who simply are jealous of the enormous strides we have made. Thus far, but little organized opposition has developed and this has been put down very effectively by our secretary single-handed. But the time may come when such attempts will become too powerful and too well organized to be subdued by diplomatic efforts and the membership may be called out in force to give an account of themselves and the association. Let us hope that that time may never come, but if it does come, let us be prepared to meet it.

Our worthy secretary has arranged for a very instructive program for this meeting. Our speakers are all authorities on their subjects and will give us the best they have.

SECRETARY'S ANNUAL REPORT, 1915

R. A. MOORE, Madison

For the past 14 years it has been my privilege to come before you with a special message bearing upon the work of our members. I take exceedingly great pleasure this year in calling attention to many things that are of great interest to the members of our association.

The past year has been remarkable in many ways and has brought us much profit in the way of experience. The Panama-Pacific Exposition gave an opportunity to our organization to determine what they were able to accomplish. The state of Wisconsin entrusted to our good worth the putting up of the Wisconsin Agricultural Educational display. This was a tremendous task of great magnitude, but by the many hundred willing hands an exhibit of agricultural products was displayed that even went beyond our fondest expectations in quality of product and greatness of display. Thousands of Wisconsin hearts were gladdened in the Palace of Agriculture at beholding the grand display of farm products from their native state.

It seems to your secretary that when our association was formed we could not foresee the functions we would be called upon to perform, but it seems almost providential that we should have been organized properly for the upholding of the dignity of our state at this great World's Exposition.

Our winners were numerous. I have not the time to name the winners; suffice it to say that in the Wisconsin competition display our exhibitors were awarded 12 Gold Medals, 45 Silver Medals and 25 Bronze Medals. The exhibit that gave joy to the many Wisconsin hearts during the past year has been returned from the coast somewhat worn and faded, but still carrying sufficient freshness and quality to interest every member of the association. It has been placed intact in the Live Stock Pavilion for the week to give to our members an idea of the constructive ability of our organization. This great educational display will go down in the history of our records as one of the achievements of our organization for which we are justly proud.

Sale of Pedigree Seeds

Our foreign trade in Pedigree Seeds has been severely cut the past year on account of the European war, but there seems no doubt that at the close of the war there will be great demand at excellent prices. I think it desirable for every member to plan on growing pedigree seed grains for foreign shipments and have a goodly supply on hand to meet the foreign demand.

The local demand and the demand from our sister states has been brisker than ever and all members having good seed found ready sale for it at a goodly figure. Your secretary feels that one of the factors that has added much to the wide sale of seeds has been the fairness that has ever characterized the business dealings of our members. The fraternal feeling existing between the seller and purchaser has been everywhere evident and has redounded in favor of our association.

For the first time this year there seems to be a desire on the part of some of the membership to boost prices beyond all reason on seed corn simply on account of the unfortunate conditions which obtained last year. The member should realize that mostly all of the buyers of seed corn are farmers like himself and there should be no attempt to take advantage

of the situation by charging double and treble the price that seed corn usually sold at.

Many calls for seed have already come to the office and lists of our growers have been sent to such parties. In many instances these same parties have written me that some of our growers would not even set a price on their seed and others wanted prohibitive prices which made it necessary to purchase elsewhere. It should be remembered that at the present time there are over 25,000 bushels of seed corn to be sold in the hands of our growers and more is being listed each day. We are not in the seed business for a season merely, but for a lifetime perhaps.

It seems reasonable this year that the grower should have a higher price for seed corn than in previous years as it required more labor to secure and fire-dry it. While the association makes no attempt to fix prices of products grown by the members, yet I feel that a good fair price to growers and buyers alike for good select ear corn would be $5.00 per bushel and $4.00 per bushel if shelled. This is to be sound high testing pure bred corn. Where a member is required to select sample ears for judging or for breeding plot an extra price can always be charged.

County Orders

New county orders are being formed from time to time, Waushara county being the fiftieth county to organize. The association is doing everything in its power to help such organizations at their annual meetings and in the sale of seeds, etc. Members of the state association should feel that they stand sponsors to the county associations and should take a lively interest in their progress.

Membership

Our membership has grown steadily and at the close of the year we had a paid up membership of 1446.

More criticism than ever before has come to the secretary that much smut developed in the oat crop this year that was sown with seed oats purchased from our members. This leads me to believe that our members are not as careful as they should be in the treatment of seed for the prevention

of smut. The association will demand for 1916 that all seed oats and barley sown should be treated. The treatment is so simple and effective that there is no valid excuse for not treating the seed sown upon the farm.

We desire to have all seed oats sacked loosely and submerged for five minutes in a solution made by pouring one pint of formaldehyde into 36 gallons of water. For barley submerge two hours. The time saved by having a large quantity of solution made up for the treatment will more than offset the extra cost for formaldehyde. After treating the grains they should be emptied on the barn floor and covered for two hours with canvas or blankets so as to make the treatment entirely effective.

I sincerely hope we will have no more complaints from this source.

The Plant Pathology Department has gotten out specific instructions for the treatment of all seed grains not only for smut but for other diseases as well which can be safely followed. Let us be able next year to list all seed oats at least as smut free. It will add immensely to our prestige as seed growers.

New Experimental Work.

Through the kindness of our U. S. senators and representatives your association has been permitted to carry on the experimental work with the new grains and grasses which the U. S. Department of Agriculture provides. We appreciate this acknowledgment of their confidence in us as trained experimenters and it is hoped that every member receiving grains from Washington will carefully grow them and not fail to report results.

During the coming year the Experiment Association has planned on some interesting experiments for its members in the growing and observation of some new crops. It is desired that each member coöperate with the association in some of this work for it means much to our future welfare as a state body of experimenters. By carrying out some line of effort it will keep our members in closer touch with the association and assist them to keep abreast of the advancement in agriculture.

A new and perhaps important line of experimental work was undertaken last year by your association. The problem was to determine whether or not a phosphate fertilizer will improve the quality of seed corn and hasten its maturity.

The agricultural chemist tells us that the element phosphorus in the soil has a great deal to do with the formation of the seed parts in most all our plants. Where there is a lack of this element the grain or seed suffers and there is not its complete and proper development.

In the laboratory it has been demonstrated that phosphorus hastens the maturity of the seed. If this is true, then it may be profitable for our farmers to apply phosphorus to their seed corn crop which will hasten the maturity of the corn and increase the quality of the ear. Very careful work is needed to determine whether this is of practical importance to the Wisconsin farmers, but if the members of our association will conscientiously carry out the experiments we may soon reach a solution of the problem.

The growing of soy beans for seed was taken up last year by a number of our members and practically all were enthusiastic over their crop, even if it was badly injured by our unusual season. This is a very important work for those interested to take up, for the demand for seed has always been good. Seedsmen are now selling soy beans at $3.00 per bushel, one bushel being sufficient to plant three acres.

That there will be an increasing demand for the seed is certain, for the Soils and Agronomy Departments, also the county agents, are demonstrating the importance and value of this crop to the man farming sandy soils or in fact any soil deficient in humus.

Members having a spare acre or two will make no mistake in putting in soy beans, not alone from the seed standpoint, but for the valuable feed the soy bean plant produces. Live stock relish it and the chemist shows soy bean hay to be nearly equal to alfalfa in feeding value.

State Fair Exhibits

Again the county orders of our association have been winners and leaders in placing exhibits of their county resources at the state fair. And because of the quality, beauty and interest in these exhibits, the state fair manage-

ment has built a county building to house them and generous prize money is given each county making an exhibit.

It is hoped that this coming year will see an increasing number of our orders entered at the fair, for these exhibits give a wonderful opportunity for advertising the quality and superiority of the improved varieties of grains, potatoes and fruit with the resources of the county and state.

On account of holding the state fair at an early date it has been quite hard to get out an exhibit of corn that would do justice to our great corn state. The management will arrange this year to let 1915 corn be exhibited for prizes as well as the crop of 1916.

Members of the association are requested to hold their samples now on exhibition at our show and enter them in the state fair show in September. We are also planning on making an association display of the prize winning grains at the state fair to show the people of the state in general what can be accomplished by our members in the growing of pedigree seeds.

IN MEMORIAM

James Grant Tyler.

It is with exceedingly deep regret that we chronicle the fatal accident which deprived our Association of one of its loyal members. Last summer Mr. Tyler was endeavoring to break a colt to the halter when the animal became frightened and kicked him in the stomach. Mr. Tyler lived only a short time after the deadly kick.

The deceased was 37 years of age and a resident of Valders, Manitowoc county. He always took a deep interest in the work of the Experiment Association and was known as a progressive farmer and broad-minded citizen.

The Wisconsin Agricultural Experiment Association extends its sincere sympathies and commiseration to the sorrowing wife, children and relatives.

Winfred J. Wiley.

Once more the grim reaper has called from the ranks one of our faithful and true workers and it is with regret that we announce his departure from this life. By his sterling character and unselfish principles, Mr. Wiley gained for himself the esteem and admiration of his neighbors and friends. And it is extremely sad that he should be called away when success had crowned his arduous labors and he was ready to enjoy the fruits of his industry.

Winfred J. Wiley was born September 19, 1865 in Delaware county, Ohio. At the age of 12 he came with his parents to Hancock, Wisconsin where he spent the remainder of his life.

As a progressive farmer Mr. Wiley was one of the men whose farsightedness and natural ability have helped to make this state noted for its advanced agriculture and high type of farming. Our association has been proud to number among its members such men as the late Mr. Wiley and desires to express to the wife, children and relatives its sorrow at his untimely death.

Charles Augustus Walker.

An unestimable loss occurred to this Association and the agricultural and business interests of Waushara county in the recent death of Charles A. Walker, president of the Waushara County Order of the Experiment Association. The late Mr. Walker typified the progressive, broad-minded business man who is unselfishly endeavoring to advance the agricultural interests of his community. Through personal sacrifices of time and means such men are rendering a wonderful service in forwarding the agricultural progress of our state.

We regret the loss of such a faithful and conscientious fellow worker as Mr. Walker, but we know his life has been an inspiration and guiding star to others who will plunge into the fray and battle against inertia and complacency which are staying the progress of a better agriculture.

Mr. Walker was born November 23, 1877, in Wautoma, Wis. Since 1899 he has lived in Hancock where he was the able cashier and president of the Bank of Hancock. The Wisconsin Agricultural Experiment Association was proud to number among its friends such a man as Mr. Walker and it was indeed a shock when his death occurred on April 8, 1916. To his sorrowing wife, relatives and friends, the Experiment Association extends its sincere sympathy in their bereavement.

James G. Tyler

W. J Wiley

SEED GRAIN INSPECTION AND CROP REPORTS 1915–1916.

J. J. GARLAND, FARM INSPECTOR

The following bins or lots of grain were inspected and rejections made.

30 lots Barley	3 rejections
52 lots Oats	5 rejections
38 lots No. 12 corn	5 rejections
36 lots No. 7 corn	4 rejections
5 lots No. 8 corn	1 rejection
4 lots No. 15 corn	2 rejections
3 lots No. 1 corn	2 rejections

Total number of bushels of grain inspected were:—

Barley	15,000 bushels
Oats	30,000 bushels
No. 12 corn	3,250 bushels
No. 7 corn	3,000 bushels
No. 8 corn	750 bushels
No. 1 corn	250 bushels
No. 13 corn	5,000 bushels
Wheat	2,000 bushels
Rye	1,500 bushels
Total number of farms inspected	93

EXPERIMENTAL PROJECTS 1916-1917

Carried out coöperatively by the Association with its Members.

1. Dissemination and trial of pure bred grains, seed for acre plot of following grains furnished Ped. No. 9 barley, No. 1 oats, No. 5 oats, 60 day oats, No. 12 oats, No. 2 winter wheat, Marquis spring wheat, No. 1 and 2 winter rye, No. 7, 8 and 12 corn.
2. Adaptability of Sudan Grass, seed disseminated and special plantings arranged for.
3. Soy beans disseminated for seed production and value to sandy soils. Tests carried on with Ito San, Med. Early Green, and Wis. early black varieties.
4. Use of acid phosphate for early maturity of seed corn. Fertilizer furnished for ½ acre plots.
5. Alfalfa experiments. Carried out under direction of Alfalfa Order.
6. Tests with sweet clover for seed and feed in Wisconsin. Seed distributed and trial seedings advised.
7. Boys and Girls County Corn Contests. Seed furnished County Supt. for distribution.
8. Seed furnished for demonstration of trial plots with County Agr. Advisors.

REPORTS FROM MEMBERS OF EXPERIMENT ASSOCIATION ON THE YIELDS OF PEDIGREE GRAINS GROWN IN 1915

Pedigree Barley.

Number of members reporting	266
Average yield Pedigree Barley	bu. 37.56
Average yield of barley for Wisconsin (U. S. Dept. Rept.)	bu. 35.5
Average yield of barley for United States (U. S. Dept. Rept.)	bu. 32.0
Difference in favor Pedigree Barley over U. S. Av	bu. 5.5

Pedigree Oats.

Number of members reporting	540
Average yield Ped. 1 Oats	bu. 57.8
Average yield Ped. 5 Oats	bu. 55.4
Average yield 60 Day or Kherson Oats	bu. 53.6
Average yield	bu. 48.5
Average yield Oats for Wis. (U. S. Dept. Rept.)	bu. 46.5
Average yield Oats for U. S. (U. S. Dept. Rept.)	bu. 37.8
Difference in favor Pedigree 1 Oats over other varieties	bu. 9.3

Pedigree Winter Rye.

Number of members reporting	78
Average yield Ped. Winter Rye	bu. 24.2
Average yield other varieties	bu. 19.8
Average yield Winter Rye for Wis. (U. S. Dept. Rept.)	bu. 18.5
Average yield Winter Rye for U. S. (U. S. Dept. Rept.)	bu. 17.2
Difference in favor Pedigree Winter Rye over other varieties	bu. 4.4

Pure Bred Corn.

Number of members reporting	154
Average yield Silver King (Wis. No. 7) Corn	bu. 51.2
Average yield of Golden Glow (Wis. No. 12) Corn	bu. 49.8
Average yield of Early Yellow Dent (Wis. No. 8) Corn	bu. 42.4
Average yield of Corn for Wis. (U. S. Dept. Rept.)	bu. 23.0
Average yield of Corn for U. S. (U. S. Dept. Rept.)	bu. 28.0

Winter Wheat.

Number of members reporting	84
Average yield select Winter Wheat	bu. 26.6
Average yield Winter Wheat for Wisconsin (U. S. Dept. Rept.)	bu. 23.0
Average yield Winter Wheat for U. S. (U. S. Dept. Rept.)	bu. 16.2

Spring Wheat.

Number of members reporting	54
Average yield Spring Wheat	bu. 28.3
Average yield Spring Wheat for Wis. (U. S. Dept. Rept.)	bu. 22.5
Average yield Spring Wheat for U. S. (U. S. Dept. Rept.)	bu. 18.3

The data given in the following tables was compiled from reports from members of the association on the yields of their crops and manner of planting for 1915. All extremely high and improbable yields were excluded in making up the tables. Also, where there were only one or two reports on a method or rate of seeding they have not been used.

Last year was rather exceptional in many respects as to weather conditions, so methods of planting or rates of seeding which did well last year may under different seasonal conditions prove not so good.

As a rule the small grains gave very heavy yields in all parts of the state. Oats especially did well and many yields would have been heavier if all the grain could have been saved. Corn yields were very unsatisfactory due to the cold growing season and early frosts and little ear corn husked. On farms where the land was favorably located as regards freedom from frost, and had good drainage, also when the corn was of an early or well adapted type, seed was saved.

The members of the Experiment Association as a whole raised more and better corn than their neighbors, for they were growing the standard pure bred corn and it matured where others did not. And the association members had seed to sell because they knew how to take care of it in the best possible manner.

YIELDS OF GRAINS PLANTED AT DIFFERENT RATES OF SEEDING ON DIFFERENT TYPES OF SOILS.

Soil	Variety of oats	Rate of Seeding in Bushels				
		1–¼	1½–¾	2–¼	2½–¾	3–¼
Heavy	Ped. 1		49	61	61	57
	Ped. 5		48	62	57	64
	Any Var.		56	51	49	51
Average			51	58	56	57
Loam	Ped. 1		59	60	56	60
	Ped. 5		58	59	50	54
	Any Var.		55	61	58	58
Average			57	60	55	57
Sandy	Ped. 1	47	50	56	58	65
	Ped. 5		46	54	66	38
	Any Var.		40	48	50	25
Average		47	45	53	58	43
Av. for Ped. 1 on all soils		47	52	59	58	60
Av. for Ped. 5 on all soils			47	58	57	52
Av. for any Var. on all soils			50	53	52	44
General av. for all oats		47	51	56	56	52

RATES OF SEEDING

The usual rate for sowing oats is about 2½ bushels per acre, and from the reports of our members this rate of seeding averages up very well for all the different varieties. On the heavy and loam soils there seemed to be no advantage in

sowing heavier than this, and for the sandy soils no gain in seeding lighter. So taking a general average of all the oats seeded and the different types of soil it seems that from 2 to 2¾ bushels gave the best results as far as last year was concerned.

The best yield at the different rates of seeding winter wheat was 1½ bushels per acre, which amount is generally recommended. No great difference can be noted for the different rates as applied to the various types of soils. With spring wheat there is some variation and the 1¼ bu. rate seemed to do as well as the 2 bu. seeding. This is probably due to the small number of reports averaged.

The winter rye gave the best average at the 1½ bu. rate, and this can generally be recommended. The heavier rate did best on the sandy soils last year, but with a dry season it may not do so well.

With barley the 2 bu. rate gave the highest yield, but it was only slightly more than the 1½ bu. rate.

YIELDS OF GRAINS PLANTED AT DIFFERENT RATES OF SEEDING ON DIFFERENT TYPES OF SOILS.

Grain	Soil	Rate of Seeding				
		1	1¼	1½	1¾	2
Winter Wheat	heavy	20	31	30	30	28
	loam	38	33	29	33	29
	sandy	19	25	29	22	.....
Average	.....	25	29	29	28	28
Spring Wheat	heavy	.....	.....	28	27	28
	loam	25	28	24	25	28
	sandy	.....	.....	23	.....	.....
Average	.....	25	28	25	26	28
Ped. Winter Rye	heavy	.....	30	32	23	23
	loam	.....	25	28	30	23
	sandy	19	16	25	.....	31
Average	.....	19	23	28	26	25
Ped. Barley	heavy	33	39	38	36	43
	loam	34	40	39	41	39
	sandy	.....	30	39	41	39
Average	.....	33	36	39	39	40

DRILL OR BROADCASTING

This past year broadcast seedings of oats seemed to do best and a 2½ bu. increase over the drill method is noted.

The number of farmers who used both methods is about equal, so the test was quite fair for last season.

The pedigree barley gave a slightly better yield when drilled, likewise, with spring wheat. Winter rye and wheat, however, did best by 3 to 4 bus. on the broadcasted fields.

With corn we would naturally expect a heavier rate of planting to give the largest yield, but the check-row method gave 2 bus. better yield than drilled last year. Possibly the ease in which check-row corn can be kept free from weeds had something to do with its better yield, especially during a wet season.

YIELDS IN BUSHELS OF THE DIFFERENT GRAINS COMPARED AS TO PLANTING ON SPRING OR FALL PLOWED LAND AND DRILLING OR BROADCASTING.

Grain	Land Plowed		Planted	
	Spring	Fall	Drill	Broadcasting
Ped. 1 Oats	53.6	60.6	56.6	58.6
Ped. 5 Oats	49.3	57.6	54.6	56.6
60 Day or Kherson			50.1	58.3
Any Variety Oats	49.6	52.6	50.9	49.3
Average for all Oats	50.8	56.9	53.	55.7
Ped. Winter Rye	24.6	26	23	27
Ped. Barley	38.6	39.3	40.6	38.3
Winter Wheat		28.3	26.6	29
Spring Wheat	27.6	26	26 6	26

SPRING VS. FALL PLOWING

Oats planted on fall plowed land most always give the best results and last year they averaged 6 bushels better than oats planted on spring plowed land. The year before oats went 5.4 bus. more per acre on fall plowed land than spring plowed.

Barley did not make much of a showing for fall plowed land over spring—there being scarcely a bushel difference while last year there was a difference of 4.2 bus. in favor of fall plowing.

Spring wheat gave one bushel better yield on spring plowed land, but there were very few reports on this crop.

REPORTS ON THE YIELD OF CORN PLANTED ON DIFFERENT TYPES OF SOIL AFTER FALL OR SPRING PLOWING.

		Plowed		Planted	
Corn	Soil	Spring	Fall	Drill	Check
Wisconsin No. 7	heavy	52	56	72	41
	loam	55	45	42	51
	sandy	42	57	26	48
Wisconsin No. 12	heavy	47	58	58	51
	loam	52	49	49	57
	sandy	46	48	39	50
Average		49	52	47	49

Corn made a yield of 3 bu. more on fall plowed land. However, on many farms last year spring plowed land gave the better yield. This was undoubtedly due to the unusual season. When an average number of years are considered, fall plowing is usually quite superior to spring plowed land for most of our crops, and it pays.

WHAT CAN WISCONSIN DO TO MAINTAIN AND INCREASE HER CROP YIELDS?

HENRY G. BELL, AGRONOMIST

Soil Improvement Committee of the National Fertilizer Association.

Wisconsin enjoys singular advantages, which make her a great agricultural state, and therefore she is destined to be one of the most important food producing states in the Union. Her outstanding advantages are her climate, soil, navigation facilities, proximity to large urban population, and the type of her people. Wisconsin farmers are noted throughout the country for their stability. They are keen and perceiving; industrious, yet selective of the avenues along which their efforts are expended. They are conservative, yet exhibit a splendid sense of business. Statistics show that in no state in the Union do more farmers own their land. In no state, as a rule, are they selling their labor and ability at more profit to themselves. These substantial qualifications, praiseworthy though they be, are based on factors which

need the keenest attention if they are to persist,—if they are to survive the test of time.

The records of 1910 show that Wisconsin manufactured nearly 150,000,000 pounds of cheese; that Wisconsin produced over 182 million bushels of money crops, consisting of wheat, corn, oats, barley, rye and potatoes. Much of this material was shipped out of the state. With these millions of bushels and millions of tons of produce going out of the state year by year, is going an ever-increasing quantity of the constituents of plant food,—namely, nitrogen, phosphoric acid and potash. This continual draft is upsetting the balance of the plant food which is circulating among the tiny particles of soil, and although Nature is doing her part by letting loose more and more of that great store of potential food, which the chemist has revealed as existing in the soil, still there is an ever-increasing shortage in the available supply of those materials which make for largest crops of best quality. It is our purpose to discuss these essential constituents of plant food in relation to conditions which prevail in any soil in any state, under any condition.

First, let us agree upon a satisfactory theory as to what constitutes the fertility of the soil, and as to its disposal. Science has established beyond a doubt, that the plant can make use of only that material which is dissolved in the waters of the soil. It does not matter what store of plant food—of nitrogen, phosphoric acid and potash—exists in the inside of the tiny kernels or crumbs of soil—if this plant food is not in such shape that it can be readily dissolved so that the plant roots can absorb it, it is just as useless to the growing crop as a similar number of crumbs of gold or lead would be. We frequently hear it said that the fertility in the soil—the store of food—as is revealed by a chemical analysis of the soil, corresponds to the farmer's bank account. As he writes checks upon his bank account he depletes it; as he grows crop after crop of corn, wheat, oats or potatoes, he depletes the store of fertility in the soil. This comparison contains a certain element of truth, but does not adequately illustrate the intrinsic powers of soil fertility. We would rather compare the fertility in the soil to a steam engine, which depends for its power upon the head of steam in the boiler.

There are conditions which make one steam engine more powerful than another; similarly, there are soil conditions which make one soil more productive than another. Let us study this analogy, so that we may emphasize, in its logical place, the importance of each condition of the soil which limits the power to produce largest and best crops. In the first place, the steam engine may be weak because of lack of fire under the boiler. The fire, in turn, may be low on account of poor draft, or poor circulation of air. Similarly certain soils may be unproductive because the tiny spaces between the soil kernels are filled with water, to the extent that all air is excluded. Circulation of air in the soil is not only necessary for plant growth, but it is absolutely necessary for the maintenance of the beneficial bacteria of the soil which are there to do such great service for the farmer, if he makes conditions suitable for their propagation.

In the second place, the steam engine may be weak on account of poor construction. The soil engine may be unable to do its work on account of the lack of vegetable or organic material. Under primitive conditions the falling of the leaves, the rotting of the grass, and the decay of the plant roots of wild plants kept up the supply of this constituent essential to fertile soil. But as men started in to grow larger crops of better quality by means of tilling the soil, they have not in all cases paid attention to putting back as much organic matter as is necessary to keep the soil in good physical condition. Organic matter or humus is one of the great essentials to soil fertility. It performs at least six great services. First, it acts like a sponge, catching and holding water to supply the great needs of the growing crops. Second, it binds together a sandy soil, giving it body. Third, it opens up a heavy clay soil, giving it proper crumb or fineness. Fourth, it supplies a home for soil bacteria. Fifth, it supplies food for soil bacteria. Sixth, it catches and holds plant food constituents which are dissolved in the water of the soil in greater abundance at times than the plant can utilize. *No tillage of the soil, no rotation of crops, no addition of available plant food can take the place of or do the work of humus or organic matter in the soil.* This, then, should be the second great condition of the plant home to which the farmer should address his attention.

The steam engine may be weak on account of the lack of lubricating its parts. So too, the soil engine may be unable to do its work on account of the wrong chemical reaction within its soil solution. There are conditions under which it is difficult and even impossible to grow common red clover, alfalfa or other legumes. Such conditions usually result from continuous cropping without any attention whatever being given to the up-keep of the lime in the soil. The common name of such condition you all know as soil sourness. As to just what reactions take place within the soil producing such condition, we are not fully informed at the present time. But farmers in general know how to recognize the condition and how to apply the cure. Then the third great condition of soil productiveness is the control of its sweetness or sourness.

The fourth great controlling condition of the power of the steam engine is the head of steam maintained in its boiler. If there is a shortage of water in the boiler not enough steam can be generated. Again, if the water in the boiler is not raised to steam-producing temperature an insufficient head of power results. Now the steam supply in the boiler corresponds almost identically to the plant food balance in circulation in the soil. It is universally recognized that soil moisture changes in its level underground much the same as it does above the soil. To illustrate, if you dip a pail of water out of the center of a big tank the fluid rushes in from all sides to fill the space. Similarly, if a crop of corn is pumping out the soil moisture and the soil plant food from an 80-acre field, the supply of moisture with its balance of fertility, which is in the soil surrounding that field, will rush in in its attempt to fill up the deficiency caused by the draft made by the corn crop. So it is that the supply of plant food is moved in all directions. Furthermore, it is moving to some extent downward, by the law of gravity, and upward by the principle of capillarity, or the clinging of moisture from one kernel to another in its upward rise. There is another force which causes the moisture to rise in the soil. It may be stated as follows:—If the farmer increases the strength of plant food solution in the top six or eight inches of soil, he thereby creates a force drawing up the moisture from below into the plant feeding regions of the soil. The layer of subsoil just under the plow furrow acts as a sort of

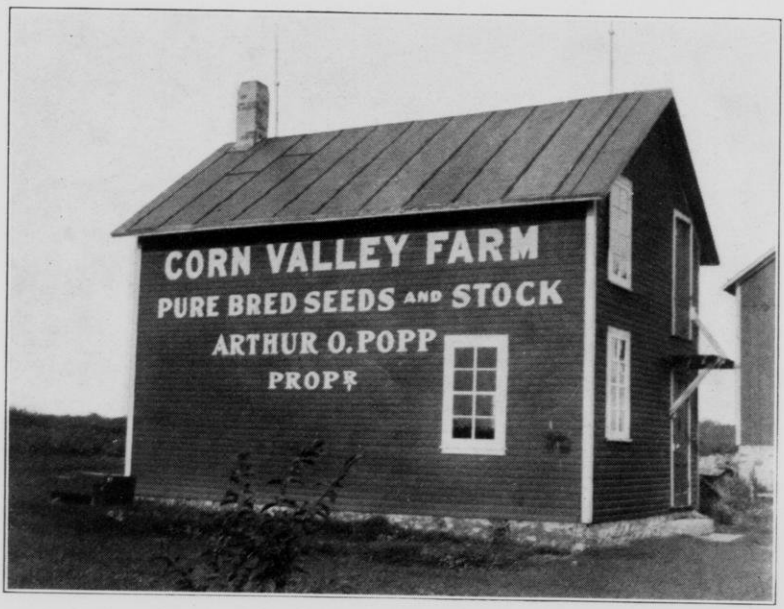
membrane through which the water rises with greater rapidity than the silt-charged water sinks into the earth. Now, you may increase the plant food solution in the growing areas of your soil by good tillage, by filling the soil with organic matter by an addition of barn manure, or by fertilizers or by any combination of these. The point I wish to make is that the active plant food in the soil is dissolved and is moving about within the soil body.

Undoubtedly you are aware of the essential plant food constituents. Nitrogen, that element which forms such a large proportion of the air we breathe is the constituent of plant food that causes the corn stalk to grow. Phosphoric acid is the constituent which causes the plant to ripen and which hastens the filling of the kernel. Potash is the constituent of plant food which gives strength to the straw or grass, and has considerable to do with the deposit of starch within the kernel or other fruit of the crops. None of these constituents exist in pure form in the soil. They are combined with other materials, some of which are readily dissolved in water, others of which must be acted upon by the bacteria of the soil in order to render them in such form that they can be dissolved and absorbed by plants.

Wisconsin has considerable areas of varying types of soil. Her medium loam soil, as a rule, contains a medium amount of nitrogen and a fair supply of phosphoric acid and potash. Her clay soils contain a medium to large supply of potash and a variable supply of nitrogen and phosphoric acid. Her sandy soils, which have been farmed for some time, are usually fairly short of all three important plant food constituents. This does not mean now, that sandy soils will not produce good crops. A sandy soil will respond most quickly to good treatment, and conversely will show bad management quicker than any other soil. The marsh or muck lands contain a great amount of organic matter. They are therefore rich in nitrogen, but poor in phosphoric acid and very poor in potash. These, then, are the essential tools or facts with which you have to work. Obviously the problem is to keep the home of the plant in suitable form and to keep the supply and balance of plant food constituents in proper form to meet the needs of the growing crops.

Some soil students say we know but very little about the soil and its management, and therefore this whole question of

Seed from this field of Turkey red winter wheat yielding 42 bushels per acre was distributed to members of the Association.



Corn curing house of A. O. Popp, Jefferson, where his well selected seed corn is given the proper care.

the handling of the last great controlling factor of soil productiveness is dismissed as a hopeless or a mysterious task. Now, the people that take this attitude toward soil fertility probably speak the truth for themselves, but the scientific world has a considerable fund of definite information concerning the management of soil fertility and the production of large crops. Your own institution has had an important part in discovering and elaborating many of these principles. De Saussure, the French scientist who lived early in the 19th century, established beyond a doubt the fact that plants take up their food constituents in solution. Baron Von Liebig, the great German chemist who lived about this time, pointed out that the essential plant food constituents could be supplied in other forms besides barn manure. He recognized the great value of stock manure and advocated its careful conservation and wise use, as all well informed students on the subject do. But even in his day the supply of stock manure was inadequate to the demand. As a result, Liebig discovered that bone which carried a large per cent of phosphoric acid, could be rendered into such form that its plant food was soluble by the addition of a certain amount of acid. This acid acted upon the ground bone and changed the insoluble or three-lime phosphoric acid to the soluble or one and two-lime forms. Liebig discovered that by using this material it supplied a small amount of the constituent which causes the plant to grow, and a large amount of that which causes it to ripen. Later he discovered that the plant needed more of the stalk-growing material than was hereby supplied. He therefore added carriers of nitrogen, such as nitrate of soda, sulphate of ammonia, and in later years other carriers of ammonia or nitrogen have been used.

It was also discovered that the addition of potash salts supplied the constituent which gave strength to the growing straw or stalk, and hastened the filling of the kernel or fruit. Not only were these fundamental principles developed in the laboratory by Liebig, Priestley and Sennebier, but they were demonstrated in the field by Sir John Bennet Lawes in his classic series of experiments at Rothamsted, which were established in 1843. Here, with his associate Gilbert, he illustrated the actual management of the plant food solution to such effect that he increased his yields and varied quality

almost at will by modifying the balance of the essential plant food constituents.

In 1886 two German scientists, Hellriegel and Wilfarth, made a very important contribution to agricultural science. They discovered that the knots on the roots of the legumes —alfalfa, common red clover, alsike clover, field peas, soy beans, etc.—contained microscopic forms of life known as bacteria. These bacteria obtained their food from the root juices, and in return took much of the nitrogen out of the air which was circulating in the soil and fixed it in their bodies or in their homes so that the soil was richer in nitrogen after the growth of legumes than it was before, provided that some of the leguminous crop was turned in as green manure. It is impossible at this time to do justice to the importance of this discovery. Of course, the fact that the growth of clover enriches the soil in some essential constituents of plant food was known even as far back as the time of the Romans, who planted lupines and pulse before wheat, precisely to increase the plant food supply for the wheat. This discovery has been an immense benefit on your good Wisconsin farms. It has meant the up-building of many of your sandy soils, as it meant the salvation of the infertile sands of Belgium and southern England over a century ago. Therefore the growth of a leguminous crop in the rotation, under general farming conditions, is good practice. Not only does the legume add some nitrogen to the soil, but its fibrous roots add enormous quantities of valuable humus. There are conditions where this supply of nitrogen can be profitably supplemented by the addition of available nitrogen carriers. It has been established beyond the shadow of a doubt that the use of a certain amount of a carrier of nitrogen or ammonia in fertilizers for potatoes, grain, tobacco and other crops gives the plant a vigorous start which makes it able to send out rootlets which lay hold of what to weaker crops would be unavailable plant food.

The next great source of plant food is live stock manure. It is like bringing coals to New Castle to talk to this intelligent audience about the merits of stock manure, and yet we find that not all farmers in even this good state pay such attention to the storage and wise use of stock manure as it merits. You are credited with keeping more lives tock per cultivated acre than any state in the Union, yet if you

estimate the large quantities of plant food that you are removing in your seed crops and in your other farm products which are shipped out of the state, and if you estimate the loss of plant food in the manure which is returned to your soils, you will be aware of the great deficit which must occur year by year. We are not belittling the value of live stock manure. We are emphasizing its importance, but there is not one-fifth enough to keep up the fertility. It is Nature's great source of plant food. For forage crops and for such crops as are grown for large plant growth it is an ideal plant food. For grain crops, it is weak in phosphoric acid. Your own Station has investigated this point. Charles E. Thorne, Director of Ohio Experiment Station, after 25 years of experimenting, recommends the use of 40 to 50 pounds of acid phosphate per ton of manure to supply this deficiency. Such an addition not only makes the manure go further, but brings it nearer to an ideal grain plant food.

The next source of plant food is fertilizers. Fertilizers are carriers of available plant food. They are the product of the mine, the air, the sea, the factory, and the by-product of the packing house and several other essential industries. Their constituents are obtained from all parts of the world, and by mechanical and chemical processing are rendered into such form under chemical control that they can be evenly distributed over the soil, and can supply to it adequate amounts of the various plant food constituents to make conditions optimum for the production of largest crops of best quality.

This fertilizer problem! you say. How shall a man know what to do to make his farm most productive? If we would judge from the reply to this question that is given by some of the agricultural writers of today, we would conclude that this was a very new problem, and one shrouded in mystery. To show you the fallacy of such an attitude, let me point to two or three facts, the first of which is that fertilizers have been manufactured since 1842; that Germany was using 8,000,000 tons in 1910; that some of our eastern states are producing under conditions whose physical obstacles are mountainous compared with those of the Middle West, over twice as many bushels per acre of potatoes and almost twice as many bushels of corn as the Middle West for the last ten years. Now, is it not fair that we credit the farmers of the eastern half of our continent with some business sense?

It would be eminently fitting to credit European farmers similarly. If this be the case, then, it surely must have paid Maine farmers to use 80,000 tons of high-grade fertilizers in 1910, else there would not have been a demand for 140,000 tons for the same area in 1915. The German empire is able to defy the world today, as far as its supply of food is concerned, precisely because it long ago learned the right handling of the soil and the right management of plant food, which includes the wise use of stock manure, and the judicious use of available plant food or fertilizers.

You ask what definite suggestions I have for the Wisconsin farmer. I have three.

1. "Clear the decks"—is the command when battleships prepare for action. Everybody knows that this command means to get everything in order for most effective work. The spirit of this order is my first suggestion. Drain your soil, rotate your crops so that a legume may be grown upon the land as often as desired. Keep up the stock of humus in the soil. Apply lime sufficiently often and in sufficient quantities to keep your soil sweet. Give your soils proper tillage to insure good circulation of air in the soil.

2. Manage your plant food so as to keep up the desirable supply and balance of available plant food constituents. You wouldn't think of turning your high record Holsteins out on oat stubble pasture alone, and expect them to keep up their record. Certainly not! You weigh up the carbohydrate and protein-carrying feeds in just the right proportions every day, and you get the greatest profits from your cows. Your crops are just as responsible as your cows. Balance up their nitrogen, phosphoric acid and potash, and your money crops will show the profit. But you ask how shall we do this? My answer constitutes my other suggestion.

3. Balancing plant food. There are three sources of plant food—nitrogen from legumes; nitrogen, phosphoric acid and potash, from farm manure; and the same plant food constituents from fertilizers. We have already reviewed the general food characteristics of the different types of soils. The general crops of the farm have their distinctive food requirements, as follows:—

Nitrogen	*Phosphoric Acid*	*Potash*
Hay—Much	Small amount	Fair supply
Grain—Fair Supply	Much	Fair supply
Roots—Fair supply	Fair supply	Much

Now, with these two sets of facts in mind, the farmer can balance his plant food from the three sources named above. It is hard to say definitely just how much nitrogen is fixed per acre per annum, by the common legumes grown upon our farms, because actual experimentation has not so far revealed this amount. Indications are that under favorable soil conditions this amount varies from 25 to 75 pounds per acre per annum. Average farm manure returns about 10 to 15 pounds nitrogen, 5 to 9 pounds phosphoric acid and 9 to 14 pounds potash per ton. With these facts in hand, then, can you not estimate how much plant food you have returned to your soil in this year's rotation and manuring?

When it comes to fertilizers, you have definite guaranteed analyses to go by. You have the per cent of nitrogen, phosphoric acid and potash. Now, as to just what to use on your soil, for your different crops, neither I nor any other man can tell you. I can tell you what others have done with profit—both experiment stations and actual farmers. To state this as concisely as possible you will find on Page 14 of the booklet on Science and the Soil, the amounts and range of analyses which have been used with profit on various types with common farm crops.

Our suggestion then is for you to choose your fertilizer of an analysis to make up for the weakness of your soils and to meet the special requirements of your crops. Fertilize part of the crop, and compare it at harvest time with the unfertilized. Compare the yields and the quality of crop from both parts.

This question of crop feeding is one of great importance to you farmers who are producing selected seed. An increase of 10 per cent to 20 per cent in the amount of your corn that will grade "seed corn" pays handsomely with seed corn at $4.00 to $5.00 per bushel.

What I have outlined is fact based on careful scientific experimenting. It is the basis for profitable farm practice in this country and Europe.

Wisconsin has done great things—she can and will do immensely greater things. You can double your yields of corn and wheat and oats in many sections and greatly improve the general quality of your cereals and potatoes by proper plant food balancing.

THE SEED CORN SITUATION FROM THE PRACTICAL FARMER'S STANDPOINT

W. H. HANCHETT, Sparta.

The first question that arose in my mind when I received Prof. Moore's invitation to present this subject at this meeting was, what is a practical farmer, and am I qualified to speak in his behalf? It was evident that Prof. Moore so considered me or I would not have been invited to handle this subject, but what about the farming public?

I was well aware that every farming community has its member who takes pride in posing as A Practical Farmer with whom no New Fangled Ideas pass. This fact he loves to repeat with great emphasis on all occasions, and he takes pains to be present on all occasions to repeat it. If the occasion is the annual school meeting in his "Deestrict" he is there to oppose everything that calls for the outlay of money. He votes for the hiring of cheap teachers and the minimum number of weeks of school. He opposes the remodeling of the schoolhouse and the improvement of the grounds, loudly proclaiming as his reasons that they were good enough for him when he was a boy and they are good enough for the present generation. If the occasion is the annual town meeting he will wade through mud up to his boot tops to vote against highway improvement and in his church he loves to proclaim that salvation is free.

And strange as it may seem because he has been able to hold down the piece of land which Uncle Sam gave him in his youth, and make something of improvements, and by dint of hard work on the part of both himself and his family may even have acquired a mortgage on the property of some of his neighbors at the expense of education and home comforts for his family, I repeat because of this, his opinion is given considerable consideration in his community as a practical man. While another man who has bought and paid for a farm at a good round figure, but believes that an education and home comforts for his family and good roads for the use of his community and living salaries for both teacher and preacher are better investments than mortgages on the property of others, may be looked upon as somewhat

visionary and unsafe by his farmer neighbors. In spite of that fact as a progressive member of the community he may be worth several times that other member who opposes New Fangled Ideas.

If the first described person is the kind you of my audience have in mind as a practical farmer, then I do not wish to qualify, for I believe in comfortable homes, good educational opportunities for all, good roads for the use of the public, good moral and spiritual environments for every community, and progressive and businesslike methods of farming. Now, having declared my articles of faith what about the seed corn situation?

The seed corn situation here in Wisconsin as I see it is simply this: at least 75 per cent of Wisconsin farmers are facing two questions; first, where am I going to get good seed corn for next season's planting, and second, what variety will be safest for me to buy?

In discussing these questions with farmers of my acquaintance, I find that there is considerable indifference manifest at this time. Seed houses all over the country from the gulf to the Canadian line seem alive to the opportunity to reap a rich harvest on seed corn and farmers are being flooded with catalogues describing wonderful varieties originated by the catalogue man that will get ripe anywhere and outyield anything ever before offered. In fact the descriptions this year are so dazzling to the eye that there is danger that they will deceive the very elect, and there is need that farmers carefully analyze the situation before placing their orders for seed corn.

The progressive farmer, (and he is the one whom I choose to consider the practical farmer) will have very little difficulty in deciding what variety or varieties he wishes to secure. For that is a matter that he has carefully worked out in past years and he will be guided by the lamp of his own experience. The corn that he wants is the corn that will give him the maximum yield and that is reasonably sure to mature in his latitude and particularly on his individual farm. It will not matter to him who originated the variety, whether the catalogue man or the agricultural college professor as performance in the field is the point on which he bases his decision and not wordy catalogue descriptions. Neither is he in need of advice in the matter for he well

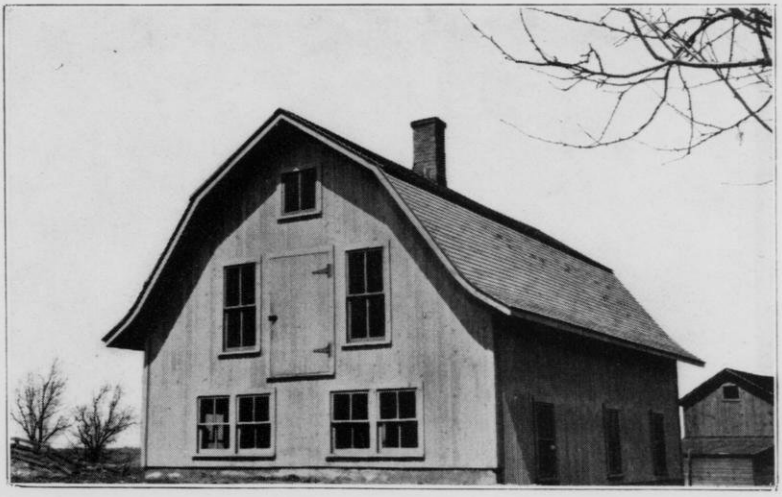
knows that his own carefully worked out knowledge of the adaptability of varieties to his particular environments is the safest guide and the chances are that he is among the 25 per cent who have been able to secure their own supply of seed corn and possibly a supply to furnish the unfortunate in his own neighborhood.

In my own case there are two varieties that I shall tie to, i. e., the Golden Glow and Silver King. The Golden Glow for crib corn and the Silver King for silage. In my choice of these two varieties there is no admixture of sentiment. They were tried on our farms with the same caution that we try out new introductions and have won out hands down over every other variety that has ever been raised in our community for the purposes for which I plant them. The Golden Glow on my farm in the average season is ready to shock by Sept. 1st and gives us the maximum yield of good sound crib corn. The Silver King in the average season is mature enough for the silo by Sept. 15th and will produce several tons per acre more good ensilage than any other variety we have ever tried.

As to where to get seed corn, the Wisconsin farmer is indeed the most fortunate of all farmers on the northern edge of the corn belt, thanks to the Wisconsin Experimental Association and its coöperative work in grasping the situation early last autumn and saving a large amount of seed by the members fortunate enough to have crops of corn mature enough to produce good seed. Had it not been for the good team work done in this line last fall by this association it would take Wisconsin at least two years to get back on the map as a corn state. As it is Wisconsin farmers should be prompt to take advantage of the situation and secure their seed at once and not wait till the Wisconsin supply has been exhausted, for acclimated seed is of just as much importance as variety, and if the Wisconsin supply is allowed to go to other states and Wisconsin farmers through neglect are forced to plant southern grown seed the loss in next year's corn crop is very likely to be considerable.

Perhaps a few words for the good of the order may not be out of place at this time for never before in the history of the association has there been so great an opportunity to impress upon the farming interests of the state the usefulness of this organization. The strictest honesty and fair dealing

Cutting Pedigree winter rye which yielded 33 bushels per acre on the farm of Rob Lachmund, Sauk county.



Seed corn drying house and workshop of Oscar Miritz's, Fond du Lac. A furnace on the lower floor dries out quickly and thoroughly the seed corn hung on racks in the large attic.

should be enforced upon all its members and any departure therefrom should be summarily dealt with. In a few instances members of this organization have defrauded the public with seeds not true to name or of such low vitality as to be valueless. When their attention was called to the matter they have refused to make restitution and a man who considers a few dollars of ill-gotten gain above a good name and permanent business should not be retained as a member of the organization. So the invitation should always be out to the public to report any unfair dealing on the part of any member of this order.

Now just a few words about seed corn in general and I am through. In the corn exhibits which came under my observation during two years work with the farm institutes, it became very apparent to me that the average farmer has very little idea as to proper type in the selection of seed corn and that there is very great need of education along this line among farmers. Even Silver King with its well established type had lost its identity entirely after a few years selection of his own seed by the average farmer. In summarizing the seed corn situation I have this to say, that many farmers will be forced to plant pure bred seed corn next year that would not otherwise have done so for the very simple reason that the scrub farmer and his scrub corn lost out last season on the corn crop and the progressive practical farmer will supply the seed that he plants for the simple reason that the pure bred won the race to maturity in a trying season. The practical farmer either has seed corn of his own raising of known germination quality or else has his order placed with reliable parties who have what he wants and is not taking a long chance by waiting till planting time before he orders.

SUDAN GRASS—THE NEW FORAGE CROP

G. B. MORTIMER, Madison

There is perhaps no crop that has so completely occupied the attention of the farmers of southwestern United States for the past few years as has Sudan Grass. It has spread from Texas as a center where it was first introduced in the spring of

1909, until now we find the northern states growing the plant, as yet, largely in the way of experimentation. According to reports from the southwest no hay grass ever became so generally popular in so short a time as Sudan Grass. Undoubtedly this is due to the way in which this grass has thrived in that section of the country.

Introduction of the Plant

Sudan Grass was brought to the United States in 1909, from Africa, by Prof. C. V. Piper of the United States Department of Agriculture. This plant, like Johnson Grass of the south, is a sorghum, and in searching for sorghums without the troublesome underground stems that Johnson Grass has, Mr. Piper found this plant growing in Egypt under the name of Garawa. Only a small sample of seed was secured, the larger part of which was planted in Texas in the spring of 1909. On account of the excellent showing made against drouth and other unfavorable conditions, all of the seed was carefully preserved and planted again the next year. Again the plant gave such a wonderful account of itself, that some of the seed was disseminated among the farmers with the result that Sudan Grass now occupies a firmly established place in the farming of southwestern United States.

Plant Description

Sudan Grass is an erect growing annual. It is a very leafy plant, and will grow to a height of from three to eight feet. It is somewhat coarse, although the stems are generally smaller than the thickness of a lead pencil. The plants stool very freely, a single plant producing as many as one hundred culms.

Climatic Adaptations

Like all sorghums and plants of similar nature, Sudan Grass requires a warm season and soil for its best development, but from trials conducted in the northern tier of states it has been found that it will do very well even in the shorter growing seasons of this section. As to moisture

requirements, this plant is quite drouth resistant, due perhaps to the extensive system of fibrous roots, with which it is supplied.

Soil Adaptations

The claim is made that this grass crop will grow on most every type of soil from heavy clays to sandy soils, provided the latter are reasonably fertile. The fertile loams, either sand or clay, are undoubtedly the best soils taking every other factor into consideration.

Cultural Practices

Like the grain crops, Sudan Grass does better upon fall plowed land. This is very essential in case of the heavier soils and those that are weedy.

The preparation of the seed bed should be the same as that for corn. The young plants do not grow so rapidly at first and are liable to be crowded by the weeds early in the season, unless special effort is made to destroy them as far as possible before planting. Consequently fall plowing, together with early and frequent harrowing up to planting time, are recommended.

For a state as far north as Wisconsin, Sudan Grass should never be seeded until danger from spring frosts has passed. About corn planting time or even a week or two later seems to be the best time for planting. This grass may be seeded in close drills, cultivated rows or broadcasted. When sown in cultivated rows the usual rate of seeding for hay purposes is from eight to ten pounds of seed per acre. Under humid conditions, the best method of seeding for hay purposes is either drilling by means of an ordinary grain drill or broadcasting. Well cleaned seed feeds freely from the grain drill, is distributed evenly and an even stand is secured. Either of the above methods requires from fifteen to twenty pounds of seed per acre.

Harvesting for Hay

When Sudan Grass is grown for hay, it should be cut in full head and before any of the seeds are formed. It is at this stage that the hay is most palatable and nutritious.

Cutting for hay after the seeds have set makes hay of lower feeding value.

From central United States southward, it is possible to get two cuttings each season for hay, and in some instances as many as four cuttings have been made. The easiest way to harvest the crop is with the mower. It cures very rapidly and can be cut in the morning and raked up the next day if the weather has been bright and sunshiny. The best quality of hay is made by placing it in small cocks and allowing to cure in that way. The leaves are retained well and if handled properly the hay will be bright, leafy and sweet.

There are few grasses that are injured so little by standing beyond the proper stage of maturity as Sudan Grass. This is due largely to the fact that the numerous stools mature successively later than the main stem and hence always furnish immature stalks, even though the older ones are ripened.

The yields vary, depending largely upon the number of cuttings made. Under irrigated conditions as high as eight tons of cured hay have been reported. In Wisconsin where not more than two cuttings may be had the yield will not on an average run higher than five tons, with perhaps an average of about four.

Harvesting for Seed

The good seeding habits of this grass are one of its very best features. The seed is produced in abundance and is retained well so that loss from shattering is not very great. When the seed is practically mature, it may be cut with a grain binder, and left to cure in shocks. It may be threshed with an ordinary grain separator. The highest yields of seed are produced in the semi-arid West where dry, warm weather prevails. The yields reported range from 300 lbs. to 1400 lbs. per acre. Good seed will weigh about 40 lbs. per bushel.

Up to the present time, the seed has been rather expensive, ranging from fifty cents to one dollar and a half per pound. This is due to the fact that nearly all of the seed being used is grown in Texas. Undoubtedly the time will come when the price will be reduced to four or five cents per pound.

For Pasture

As a pasture grass, Sudan is lacking in several of the essentials of a good pasture. Being an annual plant, a turf is not formed and considerable injury from tramping would result. Undoubtedly live stock pasturing upon it would pull out many of the plants. For these reasons its use will be confined largely to hay and seed production.

Sudan Grass in Wisconsin

During the past season, Sudan Grass has been under trial as a forage crop for Wisconsin conditions. The tests conducted by the Experiment Association were based upon various rates of seeding for forage and for seed. Owing to the unusual weather conditions prevailing the past season, the plant did not get a fair test. A prolonged, cold spring followed by a rather cool summer with early fall frosts was not conducive to very good results.

The tests conducted for seed yields were entirely destroyed by the early fall frosts. Of the members of the Association reporting upon their experiences with this grass, two have reported small yields of mature seed, so that I feel it is safe to say under ordinary seasonal conditions, a seed crop may be expected in Wisconsin.

Even under the unfavorable conditions of the past season, the crop made a good showing for forage purposes. The seeding was not made until June 23, so that the yields reported were from only one cutting. Broadcasting at the rate of ten lbs. gave a yield of three and three-fourths tons of cured hay per acre. This was the highest yield of the various rates of seeding, that from the thirty-five pound rate yielding two and one half tons. From the tests conducted, it would appear that the best rates are between ten and twenty pounds of good viable seed per acre.

It would appear from the records that this plant has made since its introduction into this country, that it should find a place under certain conditions, and for various purposes in Wisconsin farming. Undoubtedly it can not become a crop of our primary rotations, taking the place of clover, alfalfa, and corn. However, on account of the increase in yield and the greater palatability of the hay, Sudan Grass will crowd millets out of the list of secondary crops

for Wisconsin. It certainly furnishes a valuable addition to the list of soiling crops, yielding large amounts of very palatable green forage.

Then too there is the seed production phase for Wisconsin farmers to consider. It is quite possible that the south will have to look to the north central states for the production of pure seed on account of the freedom with which Sudan and Johnson Grasses mix in that section of the country. If we can produce heavy enough yields of the seed some of our farmers can surely afford to raise this crop for seed alone, at least until the price of seed falls considerably from what it now is. However, we do not advocate doing this on a very large scale until we know what may be expected in the way of seed yields.

TYING CITY AND COUNTRY TOGETHER

BEN F. FAAST, Eau Claire

Tying city and country together is a subject that could well be discussed at great length. However, I am going to be brief and dwell upon only a few of the main points which I believe will help to bring the city and country closer together. My remarks will be confined to conditions as they exist in Northern Wisconsin. As to their application to Southern Wisconsin, you must draw your own conclusions.

In this age of specialization success in any line of endeavor calls for increased efficiency. To be more efficient we must specialize, and then secure coöperation between the specialized units. Agriculture, the world's greatest industry, is perhaps the least specialized and the least organized of all the great lines of activities. A farmer's first interest is in his produce; later he sees the importance of the successful marketing of what he produces. A successful farmer must produce a high grade product. This means he must become a master of the science of agriculture, must become a practical, scientific farmer. As the quality of his product becomes better, he must have higher prices for what he sells. He must build better barns, install more expensive equipment, get better stock, or put more land under the plow. In short, increased efficiency requires

more money and a specialized market for the product of the farm. This brings him face to face with the financial and marketing problem of the farming business. The proper financing of a large and well managed farm, and the successful selling of the product at profitable prices require just as detailed and scientific knowledge as does the successful production of farm produce. The question is: How many men can be a successful producing farmer, a banker, and a produce salesman all at the same time? Would not coöperation between a successful farmer, a trained banker, and a good produce salesman bring better results and more profits for all?

Let us consider for a few minutes how other big businesses are handled. When the railroad manager submits his report and recommendations for new tracks, equipment, repairs, etc., to the board of directors, they carefully go over his plans, estimate the total cost, and then take the matter to their bankers, who arrange plans for furnishing the money. These bankers either suggest short time notes or a bond issue, which later they sell to financial houses in different parts of the country. People are glad to buy these bonds or notes because they feel sure that they are good on account of the recommendations and the reputation of the banking house that is handling the railroad loan. In general this is true with the methods of financing the large packing houses, the steel industry and the big lumber companies. These large industries have special retail departments for the marketing of their products with trained salesmen, or they wholesale their product to specialized marketing companies.

How is the individual farmer going to get the same service in finance and marketing as do the large corporations? The demands of the individual farmer and the product he has for disposal are so small that it will not warrant consideration by a large bank, or sale by a large sales organization. The farmers' money needs and his products do not receive the same attention that is given to business properly handled and backed by a scientific, well organized, business and sales organization.

In practically the same proportion that the farmers prosper, so do the business men. If the city man can assist the farmer in supplementing that business training which the

farmer often lacks, it will be to the advantage of the farmer as well as to the business man. Coöperation between country and city along these lines will accomplish wonders.

Nearly every village and city in Wisconsin has a Commercial Club or Business Improvement Club of some sort. Each has a secretary whose business it is to work for the improvement of the city; clerks who specialize in the retail salesmanship so as to be of assistance to the retail merchants; some department to assist the manufacturer; in fact, there is complete coöperation among nearly all the business interests. They are working hand in hand to make their city grow and improve, to make real estate more valuable, to give the merchants more sales and to put more money in the banks, etc. These commercial clubs advertise for factories. Often they influence the city authorities to enter into agreements for refunding taxes for from 15 to 20 years to new industries. Meetings of business men and bankers are called by commercial clubs to make plans for helping finance new organizations. Often business men take stock, and bankers loan money to get many a new industry started. Advice and assistance are given; in fact, every possible help to insure the success of the new enterprise is offered the manufacturer or jobber. If any one of you should desire to locate a factory that employs from twenty to thirty people, the competition between different commercial clubs would almost result in a panic. Each one will try to outdo the other in offering special inducements to have you locate in his city.

I wonder how many commercial clubs have ever thought of attempting to locate twenty or thirty families of farmers close around their city. Are not twenty farmer families located around a city of just as great importance as twenty factory hands receiving $1.50 a day? To show the importance, in dollars and cents, let us take a few figures.

James J. Hill is credited with making the statement that each settler who located along the line of the Great Northern Railroad was worth $2240.00 to his company. The Canadian government and our Immigration Department has set the value of each new settler at $1000.00. It is estimated that five thousand new families bought and settled on new farms each year. Taking $1000.00 as a basis of value, these new farmers are worth $5,000,000.00 a year. Taking Mr. Hill's

figures, these new farmers are worth $11,200,000.00. Then think of the new barns, houses, the new land being cleared; the increase and improvement of live stock. Why should not the business men help the new settler get located on his new farm, help and advise him after he is located, get him acquainted with banks or loan companies and assist him in making a success of his new farm?

In this morning's mail I received a letter which had been written by a new farmer in Northern Wisconsin. The letter reads in part as follows:

"Last October I obtained and settled on eighty acres of land. There are about 5 acres cleared and free from stumps while there are about 20 acres more of which is cleared but not stumped. These stumps are mostly rotten and can easily be removed with a team of horses. It is a well laying piece of land.

"I am a hard working man and am quite anxious to make good on this land, although I am without means to go ahead and improve, so I wish to ask; can the State Department give aid in obtaining milch cows and paying for same monthly out of the earnings, allowing good interest? I will, in a few weeks, be able to go out to work a few miles from here, but at a wage that would give little aid in improving a farm. My time would be more valuable at home. I work from early until late and am assured that with such assistance as I have above asked, I can make good here, for I love the work and would take a special interest in scientific farming. I am particularly fond of cows.

"I trust this is worthy of consideration. Also kindly advise me as to where I may obtain good seeds. Other information will be much appreciated."

This letter illustrates one of the problems that some of our new settlers have to face. I think I can safely say that in most communities in Wisconsin, a farmer desiring this kind of help will find no difficulty in securing assistance from the local banks or other business institutions. There are some communities, however, that are not so fortunate, and it is in these communities that the commercial club can be of much help in assisting in solving these rural problems.

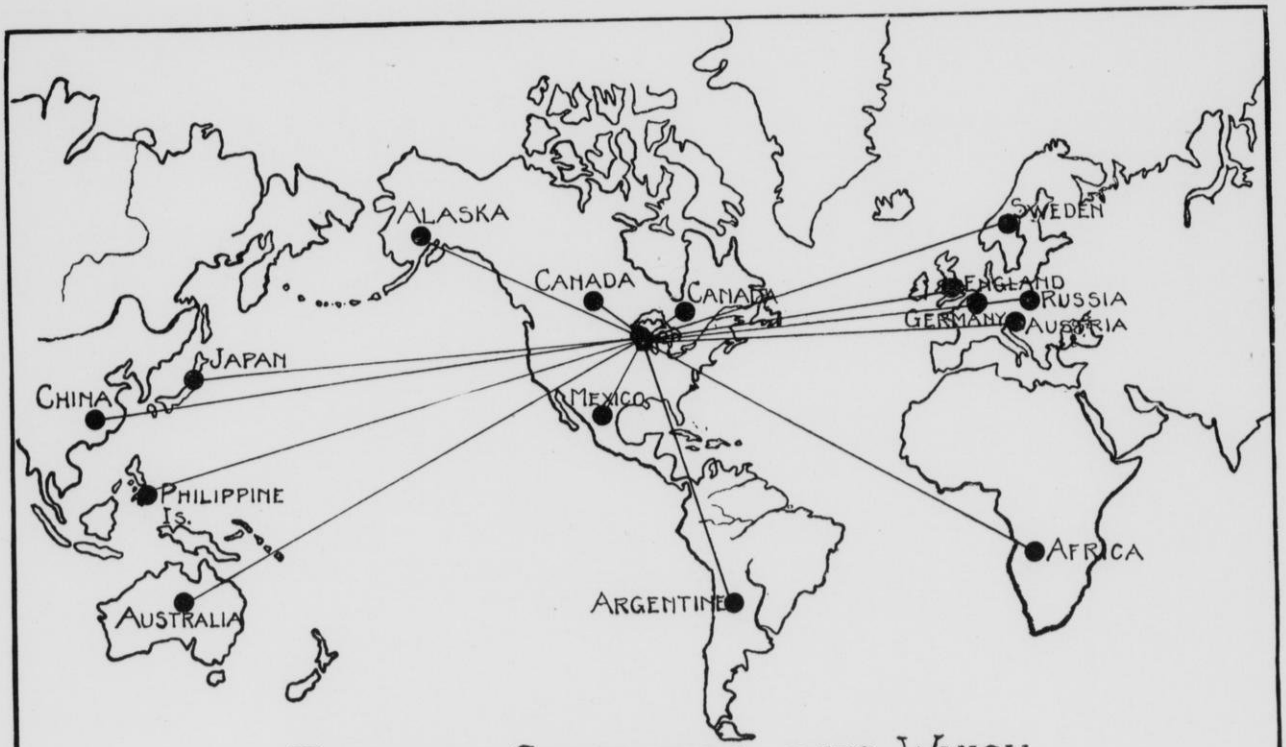
Perhaps there is no bank in the community where this man lives. If there is a good, live commercial club, this new settler could appeal to this club for assistance; it could make arrangements with either a group of business men in that community to give the needed assistance, or could take the matter up with the nearest banking institution.

There should be special committees to help solve the farmer's problems just as there are special committees to look after the problems that pertain strictly to the city. There should be a department to help the farmers with their

buildings. They should be able to go to this community club's office, and discuss the plans of new buildings with the secretary, be shown different plans, the prices of different materials, what they can be bought for in that city or village, and the advantages of each. Perhaps ten or fifteen or twenty farmers might in this way be encouraged under wise suggestion and helped to build new barns or put in new equipment. This will take considerable money. The local commercial club with its board of directors should be able to advise with the farmers and make arrangements for loaning them money for these improvements. Arrangements could very easily be made where a proposition could be submitted to the banks, and, when the bankers know that the matter has been carefully investigated and has been carefully supervised by the business men's association, they would be willing to make arrangements for extending long time credit.

Suppose, for instance, farmers felt the need of a creamery or cheese factory. Instead of going ahead and organizing a coöperative plant as many of them do, and pay enormous prices and commissions to irresponsible promoters, they could take this matter up with their own city commercial club secretary. This commercial club could investigate the situation from the most scientific sources, secure the best prices, and the bankers could get together and plan the best way to finance this new farmers' industry. A cheese factory, or creamery, could be established or one could be induced to locate there. Then the problem of how to get more cows would come up to the farmers. A committee could be selected to look after furnishing the credit if the farmers did not have the ready money. A committee of farmers, together with one or two business men, could go out and select a few carloads of cattle. There are many ways in which this kind of coöperation between business men and farmers could be carried on and greater results would be secured for both the farmer and the merchant. The cost to the business men would be much less than they are now paying to help locate new manufacturing plants in their city.

Who ever heard of a commercial club offering a farmer exemption from taxes for a number of years in a community if he opened up a new farm, or offering him a bonus if he bought land if he built fine new barns and other buildings? Why should not the commercial clubs give the same coöper-



FOREIGN COUNTRIES INTO WHICH WISCONSIN GRAINS HAVE BEEN SHIPPED

ation,—and I say greater coöperation,—to the farming community than they do to the manufacturing industry? It is simply because this matter has not been brought to their attention. It is perhaps as much the farmer's fault as it is the business man's fault. I do not believe the initiative lies with either. I believe both farmers and business men must get together and work out the solution of this problem jointly. Every farmer here today, when he goes back home, should talk this matter over with his business men; talk it over with the commercial club secretary; urge each one of them to see if you cannot start some joint system of coöperation that will mean much, both to the city in which you have an interest, and to the farming community in which the business man has an interest.

I am glad to say that there are many communities in Wisconsin where just such coöperation as I have outlined above is being worked out between commercial clubs and farmers. The real live commercial clubs are assisting and coöperating with the farmers, and the real live farmers are welcoming this assistance from the business men and are coöperating in every possible manner with them. There should be many more communities working along these same lines. It is up to the farmers to start things moving. It will surprise you to find how quickly the business men will take to this joint coöperative plan if you will present the matter to them frankly. Get your neighbors together, if it be only a few, and call on your business men, bankers, and commercial club; and get something started along these lines.

REPORT ON ASSOCIATION'S COÖPERATIVE EXPERIMENTAL WORK.

J. J. GARLAND, Assistant to Secretary

When the Wisconsin Experiment Association was organized 16 years ago and a constitution prepared, the first article adopted was that "the object of this organization is to promote the agricultural interests of the state by carrying on experiments or investigations that shall be beneficial to all parties interested in progressive farming." For the first

few years of this association's existence its members confined themselves to purely experimental work, to the trying out of various new crops, and the best methods and practices of growing them.

Hundreds of members put in small patches of that new crop alfalfa. The members didn't know how to prepare the soil, take care of the crop or any of the details most everyone now knows. It was purely experimental work but it paved the way for our present knowledge of the best methods of handling this important crop. It was through the trial plots and fields our members put in that their neighbors and friends became interested and finally decided to try it out. And now there are thousands of acres in this state which no doubt are actually due to the many years of experimental work done by the Association members.

The prevention of oat smut was another line of experimental work carried on. Prof. Moore used to go about the state estimating the extent of damage due to this destructive pest. Then he would have some of the members try the formalin, the blue vitrol, or hot water treatment to see if this disease could be controlled. Thanks to the excellent work done by the members in coöperating with the association, oat smut was practically banished from Wisconsin and the entire state felt the beneficial effect of that experiment.

In 1904, 100 members reported on growing the Swedish Select oats, a new variety just secured from abroad, and it was found that this variety was well adapted to our conditions. Since that time, Swedish Select oats have become known to practically every farmer in the state whether he ever heard of the Experiment Association or not.

The Pedigree No. 1 oats soon afterwards came into existence for it was bred up to overcome the weak straw of the Swedish Select oats. However, this fact was not firmly established and the oat recommended for general growth throughout the state until hundreds of the members had grown the Pedigree No. 1 in an experimental way and found that under farm conditions the oat was superior to other varieties for richer soils.

Other experiments with rape, Soy beans, and other crops were planned. The different methods of sowing, time of seeding, planting and cultivation and use of the crop were tried out and reported on each year. This work helped to

spread the knowledge of better methods and profitableness of the new crops.

The name and fame of the new varieties of grains which our members were growing created an unusual demand for the seed and the Association Experimenters became disseminators of the new seeds as well as of the information concerning the new crops. And even up to the present time or for the past five years the association has been extremely busy spreading the culture of these more profitable varieties and has somewhat neglected the purely experimental side of its work.

But the Experiment Association last year began a somewhat new order of experimental work when it undertook the problem of trying to find out if some sort of a fertilizer wouldn't help in the production of better seed corn. Our corn breeders know as well as every farmer who tries to pick show ears or seed corn that good well formed ears are hard to find. For some reason or other there is a very small percentage of the corn that will do to save for these purposes.

Where a man has his corn field on poor land, the chances of finding good ears are very small and only a very little corn is of good type. Where the corn field is on alfalfa or clover sod which has been well manured and is in a good fertile condition the percentage of good ears is very much higher.

Most of us know something about the chemistry of the soil and realize that there are 3 or 4 principal elements or minerals that a plant needs to feed on to produce a big thrifty growth and good seed.

Nitrogen and potash are two of these elements that the plant feeds upon to a large extent. And according to some of the authorities on soils, these two elements can be found to a considerable extent in most of our soils, or they can be restored if the supply is depleted by a good system of crop rotation and manuring of the land.

But phosphorus, the third important element for the plant, cannot be restored so easily to the soil if it is once lost. But it is the cheapest of these elements to purchase and can thus be added if it is found to be lacking.

The chemist tells us that phosphorus has a very important rôle in the development of a plant's seed or grain. If we analyze a corn plant, ¾ of the phosphorus taken out of the

soil is found in the seed or ear. A hundred bushel crop of corn takes 23 pounds of phosphorus out of each acre of soil and much is lost each year by being leached away. It is known that if there is a lack or scarcity of phosphorus then the formation of the seed or ear is retarded and we do not find as good or heavy a crop of ears as is desired. Also the chemist tells us that phosphorus hastens the maturity of a plant. It can form its seed and cease growing much sooner if there is plenty of this phosphorus in the soil. This brings to us a very important thought. If we could feed our corn plants enough phosphorus why wouldn't they mature sooner and produce a better quality of ears which is a thing every corn grower wants?

Of course, this can be possible only to a limited extent for all the other elements of plant food, as well as heat, moisture and soil conditions are factors which must be taken into consideration. But if we could hasten the maturity of corn a week or increase the percentage of seed ears 10 per cent perhaps it would still be profitable.

Your association is therefore experimenting to see if the addition of a Phosphate fertilizer wouldn't help some or at least enough to make it profitable to the farmer who wants to get a high percentage of seed ears.

Last year a proposition was made to a number of the older members of the association whom we thought might be interested in this experiment and would care to try it out. The association was to furnish a bag or two of acid phosphate to a member if he would agree to spread it according to direction on two ¼-acre plots in his cornfield. The plot was to be marked off and at harvest time the corn husked off the two fertilized plots as well as an equal plot of the field that had received no phosphate.

Two bags of 125 pounds each were sent eight members, who were to apply it at the rates of 600 and 400 pounds per acre, which would be 100 pounds and 150 pounds on the ¼-acre plots. One bag of 125 pounds was sent 32 members, who were to apply it at the rate of 300 and 200 pounds per acre.

Five men have never sent in any report as to the use or results with the fertilizer. Seven others sent in a letter saying that no report could be made, while the remaining 28

members reported as well as they were able the results obtained.

The following brief extracts from the member's reports will show the results obtained with last year's experiments:—

Otto Oimoen, Barneveld, (1 sack) No. 12 corn, clay loam soil.
Could see no difference between plots regarding maturity, vigor or size. Grubs bothered.

W. G. Jamison, Appleton, (1 sack) No. 7 corn, clay loam soil.
Plot which received 200 lb. rate fertilizer, *manured spring 1915,* 300 lb. plot and check, *manured in 1914.* This plot with 200 lb. rate had ripest corn, largest ears and stalks on this plot. However, ears on 300 lb. plot larger and stalks taller than on check.

Jippa Wielinga, Midway, (1 sack) No. 12 corn, sandy loam soil.
The corn on fertilized plots matured a little earlier than on unfertilized, also had larger ears, and taller stalks.

Arthur O. Popp, Jefferson, (1 sack) No. 12 corn, clay soil.
It seemed to me that fertilized plots had heavier stalks. A neighbor said he could see a line through field one side being taller, this corresponded to the blank and fertilized plots. Fertilized plots seemed less mature when frost came.

H. T. Draheim, Gotham, (1 sack) No. 7 corn.
As this was a cold year, corn came up rather uneven and I could not see any difference until it was about 12 inches high. Then I noticed it had a rather dark green color. Neighbors often asked me what made that strip of corn such a dark green color. I explained to them and they were so interested they were going to help me husk and weigh up the crop.
I don't think it grew taller but the fertilized plots silked out earlier. On August 7th we had one of the worst hail storms that ever visited this country and the crop was ruined.

John Van Loon, La Crosse, (1 sack) No. 12 corn, sandy loam soil.
Results obtained were in a measure unlooked for in that there was not a great deal of difference in total weights of each plot. The most marked results were noticeable in the quality and earlier maturity of the crop on the heaviest fertilized plots, and I am convinced that it will pay to follow it up.

A. L. Thompson, Blair, (1 sack) No. 12 corn
Our corn froze in August hence impossible to make any comparison. Will state that plants on plot where fertilizer

was applied looked more vigorous and grew taller than unfertilized.

Fred Voight, (1 sack) No. 12 corn.

Plot on which 200 lb. applied could easily be seen from any part of field, also that on which 300 lb. was applied, and the latter plot grew faster than where 200 lb. put on. Six check rows along fence and between the two plots looked scrubby. I could see fertilizer was of great value to corn.

Chas. H. Howitt, Randolph, (1 sack) No. 12 corn, clay loam soil.

As my corn froze it is impossible to get accurate results from the experiment. Grubs worked in it and affected some hills worse than others.

Homer Miller, Pickett, (1 sack) No. 7 corn, clay loam soil.

Could see no difference in maturity, size of ears, or stalks. Corn froze and the field the plots were on didn't develop as it should.

H. N. Longley, Dousman, (1 sack) No. 12 corn, silt loam soil.

From start to finish the fertilizer plots led off and kept ahead of unfertilized plots. No difference in maturity on two fertilized plots but they were more mature than unfertilized. Ears larger on fertilized plots, also larger and more vigorous growth of stalks.

W. C. Wright. Eau Claire, (1 sack) No. 12 corn, clay loam soil.

Found more mature ears on plot which had 200 lb. rate. Stalks stood up better but could notice no difference in height or vigor, neither in size of ears.

William Schwandt, Deer Park, (1 sack) No. 8 corn, clay loam soil.

The corn on the fertilized plots showed a marked improvement from the start and was somewhat better matured.

Martin De Boer, Midway, (1 sack) No. 1 corn, black loam soil.

Where heaviest amount of fertilizer was applied corn grew a little faster and was better matured. Ears were all about same size although stalks were a little larger on fertilized plots.

Elmer F. Thibodeau, Luxembourg, (1 sack) No. 12 corn, silt loam soil.

The corn didn't mature on any of the plots and could see no difference between plots in regards to maturity or size.

C. S. Ristow, Black River Falls, (1 sack) No. 7 corn, clay soil.

Could see no difference between plots.

H. J. Block, Burlington, (1 sack) No. 12 corn, sandy loam soil.
On heaviest fertilized plot could notice a slight difference as to maturity.

Guy Trelevan, Omro, (1 sack) No. 7 corn, clay loam soil.
I don't think it advisable to drop that amount of fertilizer, 200-300 lbs., directly on the hills as I find it strong enough to burn the young plants under certain weather conditions. Our past experience has been to drill the fertilizer. We find there will be enough in the hill and the roots will find the rest as the plants grow. From start to finish fertilized plots led off and kept ahead of unfertilized plots on same kind of soil.

J. R. Thorpe, Tavera, (1 sack) No. 7 corn, clay loam soil.
I could see no results this year. The continued wet weather and frost mixed corn so it wasn't worth harvesting.

Fred Grebe, Fox Lake, (1 sack) No. 12 corn, loam soil.
Corn had to be replanted on account of bad weather. Could see no difference in plots.

Kaltenberg & Sons, Waunakee, (1 sack) No. 12 corn, black loam soil.
No difference noticed between fertilized and unfertilized plots. Corn didn't mature and no seed picked.

YIELDS OF CORN FROM PLOTS FERTILIZED WITH ACID PHOSPHATE.

	Size of plot in acres	Lbs. ear corn produced from plots			Lbs. seed ears selected from plots			Bu. ear corn produced per acre			Bu. seed ears produced per acre		
Rate of fert. application		75	50	Ck.	75	50	Ck.	300	200	Ck.	300	200	Ck.
Van Loon	1/6	894	879	799	[1] 666	623	529	67	66	60	50	47	40
De Boer	1/4	1200	1147	1080	880	907	833	60	57	54	44	45	42
Schwandt	[3] 1/71	93	92	84	[5]	.....	.....	83	82	75	.....	.....	.....
Block	[3] 1/17.7	394	376	372	[5]	.....	.....	87	83	82	.....	.....	.....
Popp	[3] 1/49.3	100	111	102	30	32	29	62	68	63	18	20	18
Miller	[3] 1/115	435	49	43.5	4	8.5	3.5	63	70	63	6	12	5
Longley	1/4	860	840	700	320	300	240	43	42	35	16	15	12
Ristow	1/4	984	1032	1080	[5]	.....	.....	49	52	54	.....	.....	.....
Wright	1/4	908	694	605	255	280	195	45	35	30	13	14	10
Wielinga	[3] 1/30	[2] 257	[2] 244	239	[2] 175	[2] 160	150	96	92	90	66	60	56
Jamison	1/4	556	[4] 772	562	52	69	11	28	39	28	3	3	.5
Average	.....	.....	.....	.....	.....	.....	.....	62	62	57	27	27	23

1. 32 lbs. fert. applied
2. 62½ " " "
3. 3550 hills per acre used.
4. Manured spring 1916.
5. No seed corn selected.

This table showing yields of corn from fertilized and check plots is made from reports of members who received one 125-pound bag of the acid phosphate. This bag was divided

into 75 and 50 pound lots and spread on ¼ acre plots in the corn field. At harvest time the corn grown on the plots was husked and weighed, in some instances only a certain number of hills were husked and weighed. The number of hills husked being figured on the acre basis using 3550 hills per acre.

The first column gives the name of the experimenter. The second, that part of an acre weighed up. The total yield in pounds of corn grown on the fertilized and unfertilized plots is given in the next three columns. In the next three columns the amount of seed ears that were selected from the total production. The last six columns gives these weights reduced to bushels per acre using 80 pounds of corn to the bushel.

In nearly every instance the total yield of corn from the fertilized plots was more than that from the check or unfertilized plots and the average increase from the use of the fertilizer was 5 bu. per acre. The use of the 300-lb. rate per acre did not appear to give any better results than the 200-lb. application. In some instances the yield was less so that the average increase from both was the same.

The total yield from the fertilized plots averaged much better than the general yields of corn as reported to the Secretary from all the members of the association, while from the check plots the yield is only slightly better. In some cases the corn when weighed was not mature so consequently the yields are heavy. Yet most of the members who tried out the fertilizer had seed corn to sell this spring so it has proven that some mature corn was produced.

The amount of seed ears that were saved from the total yield is interesting to note and it shows that in some fields a high percentage of good seed ears were found. The officers of the association have always believed that it was best for the corn growers not to save too large a percentage of the corn for selling as seed corn as it is better to keep the quality high.

REPORTS FROM EXPERIMENTERS WHO APPLIED ACID PHOSPHATE AT 600 LB. AND 400 LB. RATE PER ACRE TO PLOTS.

O. F. Miritz, Fond du Lac, (2 sacks) No. 7 corn, clay loam soil.

On heaviest fertilized plots stalks taller and corn better matured, also ears a little more uniform.

Weights. Picked off 50 average ears from each plot. No difference in weights.

Lawrence Buckley, Kilbourn, (2 sacks) No. 12 corn, clay soil.

Corn on fertilized plots seemed much nearer maturity than on other. No difference noted in regard to vigor or quality. Weights secured on only two plots account of white grubs.

Weights—400 lb. rate 80 lb. seed ears
check 70 lb. seed ears

J. A Brunker, Ridgeway, (2 sacks) No. 12 corn, clay soil.

There was a large percentage of matured corn on 400 lb. plot, also the ears were larger.

		total
Weights—600 lb. rate	30 lb. seed ears	798 lb.
400 lb. rate	20 lb. seed ears	1155 lb.
Check	26 lb. seed ears	869 lb.

L. M. Hanson, Eleva, (2 sacks) No. 12 corn, loam soil.

Could notice no difference in maturity or growth. The phosphate, which was applied by hand to top of hill, seemed to make the soil very hard and plants have trouble coming through.

Weights—600 lb. rate 69 lb. ears
(40 hills) 400 lb. rate 68 lb. ears
check 61 lb. ears

Edw. L. Holt, Kenosha, (2 sacks) No. 12 corn, black loam soil.

Fertilized corn larger, plumper and more mature than other, the heaviest treated being decidedly better.

Weights—600 lb. rate 168 lb. ears
400 lb. rate 25 lb. ears
check 74 lb. ears

Stock broke in and destroyed much of corn on plots so weights not accurate.

SOY BEAN GROWING CENTERS

Last year the Experiment Association undertook the establishment of soy bean growing centers for the production

of seed so the increasing demand could be supplied. Twenty pounds of seed and some inoculated soil were sent to about thirty members with directions for growing the crop.

The varieties tried out were Ito San, a yellow bean and the best variety ever grown at the University Farm, the Medium Early Green, a green bean of earlier maturing qualities, and The Wisconsin Early Black, a small black bean adapted to regions where earliness is desired if seed is to be produced.

The need of good Wisconsin grown seed is very apparent and our members could make this a very profitable farm crop. Soy beans are especially desirable on account of their ability to produce a big amount of hay or forage on sandy soils. They also have the power to add nitrogen to the soils and build up the fertility by means of the great masses of nodules produced on their roots.

It is very important that the land or beans be inoculated with the proper bacteria. A much better growth is made when the plant is inoculated and more and better feed produced. Soil for inoculating the beans can be secured from the Experiment Station at Madison, or any of the Branch Experiment Stations. Or a liquid culture can be had free of charge, by writing to the Bureau of Plant Industry, Washington, D. C.

Our experimenters did not have very good success in growing the soy beans for seed last year owing to the extremely unfavorable season. Soy beans can withstand dry weather and heat better than wet cold weather. However, most of those who put in soy beans are enthusiastic over the crop for very good hay and forage was secured.

This coming year about double the number of members will be furnished seed and with a favorable season there should be some good fields of seed produced.

The following are short reports from the Experimenters as to their experiences with the crop:—

Elmer F. Kopp, Eau Claire, Eau Claire county, Sandy Soil Medium Early Green variety.

Soy beans are a coming crop in this locality for sandy soils. I planted the beans June 15th and they were ripe by September 22. I planted some with a cornplanter and some with sugar beet drill. Those planted with drill were too shallow and not thick enough. Those planted 2½ to 3 inches deep grew

Always inoculate soy beans. The first row was not inoculated, its growth is much inferior to other rows where seed was mixed with soil from old soy bean field.

To produce better seed corn acid phosphate is needed on some soils. The row in center of picture was not fertilized.

faster. Therefore I would advise planting with corn planter, rows to be same as corn and hills from 8 to 10 inches apart and 4 beans in a hill. The plants then stand up better and have more pods.

I think early black best because the beans are tougher and harder to crack in threshing. When threshed with a regular Case separator with all concaves in, $\frac{1}{6}$ of beans were cracked but these were easily cleaned out with a fanning mill. I have 25 bushels early black for sale and will furnish inoculating dirt free.

Roy Burnell, Chippewa Falls, Eau Claire county, Sandy Soil Medium Early Green variety.

I think the crop would make a good hay crop and if plants had matured they would have averaged 12 bushels of seed per acre. Hay fed to cows and some like it while others would not eat it.

H. A. Cook, Arena, Iowa county, Sandy Soil.

According to my short experience I think they are very profitable. I planted them on the poorest soil we had but still they yielded good. If I had planted them on good ground would have gotten a much better crop. I turned cows in on the beans and the milk flow increased. The cows and horses seemed to enjoy them. There was quite a difference in height of plants where some were left uninoculated.

Milo E. Niles, Mauston, Juneau County, Sandy Soil Medium Early Green.

I think the crop a success in this locality only a little late. My crop grew fine and was about 4 feet high and very heavy.

Secured three bags of seed which has been distributed in this neighborhood for seed.

Where plants were uninoculated they were smaller.

Arthur H. Peterson, Nelsonville, Portage County, Sandy Soil Ito San variety.

I think soy beans an excellent crop for soiling, green manure or late summer pasture. They make a good growth on sandy soil. We have 9 acres that will be put into soy beans for pasture and I think we will get more good from it than any other crop.

J. M. Larson, Knapp, Dunn County, Sandy Loam Soil Medium Early Green variety.

I think soy beans a good crop to raise but on account of cold weather didn't mature. Crop was put in silo. I would plant soy beans next year but have rented my farm.

J. S. Kent, Rusk, Dunn County, Sandy Loam Soil Wisconsin Early Black variety.

I like soy beans very well to feed with corn either in pasture or out of bundle. They also make good hay. I find that

horses like plants very well. Have not been able to get very large yields of seed so far.

C. W. Meacham, Downing, Dunn County
Wisconsin Early Black variety.

I am well pleased with the beans as a crop and expect to plant them next year. The season was too wet and cold for the beans, also the rabbits and woodchucks did a great deal of damage. The straw was fed to horses and sheep dry and they liked it.

Geo. W. Prochaska, Friendship, Adams County, Sandy Soil
Ito San variety.

Soy beans can be used in place of clover when it fails. We fed them to hogs and they picked up every bean. Cows ate stalk and all. Also fed to calves and sheep. Stock ate soy beans in preference to corn fodder.

F. E. Huser, Cumberland, Barron Co., Clay Loam Soil
Wisconsin Black variety.

We had a very wet cold season, otherwise the soy beans would have been a fine crop. Had a perfect stand and good growth but cold prevented maturity. Plants fed green and well liked by both hogs and cows.

John Vaughan, Unity, Clark County, Clay Loam Soil

We had a very good growth, plants 2½ to 3 feet high but were killed when blossoming. Under favorable weather conditions it might prove a good crop.

Geo. Buehler, Medford, Taylor County, Sandy Loam Soil
Wisconsin Early Black variety.

Considering unfavorable season results proved very gratifying. Plants attained a height of 3 feet where drainage was good and soil was more light and sandy. They made about 2 tons of hay per acre.

Where plants were uninoculated plants were not as large and hardy.

Ernest Thoma, Sugar Bush, Waupaca County, Sandy Loam Soil
Ito San variety.

I think it is a good crop to mix with corn and plant for silo; have done it for years and my neighbors do it also.

A. M. Harris, Plainfield, Waushara County, Sandy Soil
Medium Early Green variety.

Do not think the Green variety early enough for this locality. Perhaps with a more favorable season they would have matured.

The roots were loaded with nodules and I think it a good crop for sandy soil if for no other purpose than to plow under.

C. G. Bridgman, Wautoma, Waushara County, Sandy Loam Soil
Medium Green variety.

I believe that the crop will be a good one to raise. When once established I think it will do well here. I should like to increase the ground planted next year if I can get the seed.

E. W. Roberts, Wild Rose, Waushara County, Sandy Loam Soil

I thought the soy beans were good. They had many more nodules on the roots than alfalfa or clover.

A. F. Jacobs, Coloma, Waushara County, Sandy Loam Soil
Ito San variety.

I believe they will be a very good crop to raise on our soils especially as a green manuring crop and for hay. Perhaps the Ito San variety would get ripe in a more favorable season.

Soy beans ought to be good also to take the place of clover when that crop fails in the rotation.

I had ½ acre of the Early Black variety which got thoroughly ripe. Cut them for seed, getting 6 bushels.

SOIL MANAGEMENT FOR A GOOD CORN CROP

NOYES R. RAESSLER, Beloit

If we expect to handle the soil to its highest efficiency, we must determine its functions and then do our best to provide favorable conditions for performing them.

The soil must furnish a home for the corn crop and must feed it as well. The roots of the plants must be enabled to penetrate deeply into the soil, forming an anchorage against winds and storms. It must act as a storehouse, with an abundant supply of plant food and moisture. At the same time it must serve as a laboratory in which chemical changes and bacterial action can place the plant food in proper form for the use of plants.

To be sure most soils perform *part* of these duties, but to be highly productive a soil must perform them all. Many soils contain ample supplies of plant food but fail to produce satisfactory results because of their poor physical condition. To effect the improving of the physical condition is to supply a better home for the plant and to furnish more favorable conditions for the making of plant food.

Thorough drainage, the liberal application of manure, good plowing and cultivation at the proper time are means by which the physical condition of soil may be improved.

As corn requires a very large amount of plant food (especially nitrogen) during its season of growth, one of the greatest problems is how to supply this in the cheapest way. Fortunately the clover crop thrives in Wisconsin. When this is supplemented with manure, we have little difficulty in securing a good supply of *organic matter*, loaded with nitrogen and in the most *available* form. Therefore we will select a clover sod for our ideal corn ground. In the majority of cases there is a decided advantage in fall plowing. The work can be done at a time of the year when both men and teams are not so busy as during the spring rush, and there is a better opportunity of getting the corn planted on time.

Presuming our clover sod has received a liberal application of manure, we will plow it to a depth of about six inches and leave it exposed to the weather until spring. On bottom lands it may be advisable to plow somewhat deeper, but in any case we must avoid going much deeper than has been practiced previously. The turning up of raw subsoil is sure to bring about disastrous results unless it is done very gradually.

In early spring the disc harrow is used to thoroughly work up the ground. This must not be delayed, as evaporation and baking of the soil will soon form lumps. The first crop of weeds is destroyed before they have come through the ground. And this, by the way, is the most economical and effective method to destroy weeds at any time. In a few days the disc is again applied. Now, we are turning up more weed seeds and as they receive the warmth of the sun, germination takes place only to be destroyed a little later by this same process. This is continued at weekly intervals until planting time.

Now we have a warm, mellow seed bed, millions of weeds and insects are destroyed and we are in time to get our corn planted in good season.

The depth of planting plays an important part in securing a good stand of corn. Very often in a mellow seed bed there is danger of getting the corn planted too deeply. The past season a great many farmers planted their corn over for the second and third time before they discovered the real cause

of the trouble. Corn cannot germinate in cold ground. When we plant 3, 4 or 5 inches deep it is beyond the reach of the sun's warm rays. Especially is this true of early planting.

After planting a light rolling is helpful in securing more even and rapid germination. This is followed by the harrow to avoid danger of washing in case of rain or evaporation, in case of drought.

Harrowing should be continued at weekly intervals until the corn is up, and then it may be supplemented by the weeder or used continually until the corn is large enough to cultivate.

Cultivation

It is especially important to keep the corn in a good, thrifty growing condition in its early stage of growth. When once stunted, it never fully recovers. Cultivation is not alone for the purpose of killing weeds, but the object is to maintain a good mellow tilth until the corn shades the ground. If we wish to cultivate deep, there is little danger to the corn roots if done the first time; however, there is little use in going down more than three inches at any time. With our improved surface disc and eight-shovel cultivators, better results are often obtained by going down less than three inches after the first time through and finishing up at a depth of about one inch.

If we take the trouble to continue late cultivation from the time the crop is ordinarily laid by, until the tassels appear, we can add bushels to the crop much cheaper than any other way. At this period the corn requires a tremendous supply of plant food. If the surface of the soil is undisturbed, a crust soon forms, promoting quick evaporation of moisture. And as rainfall is usually scant at this time our crops cannot make the best use of what plant food is contained in the soil, consequently we can hardly expect a full yield.

The little 12-tooth cultivator is just the thing to keep a crust from forming and if used often enough will prove about as profitable an operation as any work done up to this time. True, this may seem impracticable to the more extensive corn grower with his 200-acre fields and two-row cultivators, but my subject is "How to Produce a Good Crop of Corn" and not a cheap one. I have tried the latter but found it too expensive in the end to be considered profitable.

STATE FREE EMPLOYMENT OFFICES AND FARM HELP

TAYLOR FRYE, DEPUTY OF THE INDUSTRIAL COMMISSION

This subject is called to your attention because the Industrial Commission feels certain from past experience that the Free Employment Offices can be a practical help to farmers of this state in securing farm hands. Employment offices, under the direction of the Industrial commission, and free to both employer and employee, are located at Superior, Oshkosh, La Crosse, and Milwaukee. During the last few years, on account of the industrial depression, it has been difficult for men to secure work in the cities. Large numbers of good men have been out of work through no fault of their own. Some of these men have had experience on farms and are willing to take farm work if they can get it. These men are not hoboes. Some of them are foreigners from Europe, who are anxious to work on the farm until they can get enough money to get a little land of their own. Others are men who left the farm and went to the city allured by what seemed to them the high wages paid to city workers. They learned their mistake and in many cases are glad to go back to the farm. Others still, are men who have lived on rented farms and have been displaced in one way or another and have gone to the city to find work.

People of all nationalities are found among the applicants for work. It sometimes happens that applicants can speak little or no English. If the employer is willing to put up with the trouble and annoyance of teaching the man to speak the language, he may be able to secure such a man at comparatively low wages. Competent men are sometimes found who have no money to pay their fare to the place where they are wanted. In such cases the farmer is notified that if he will advance the necessary railroad fare the superintendent of the employment office will buy the ticket and check the man's baggage to his employer. The fare may then be held out of the man's wages. In such cases the money is not put into the hands of the employe; the officials of the office buy the ticket, place the man on the train and start him for his destination. During the year 1914–1915, quite a large

number of men were sent out in this way and only one man failed to reach his employer.

The office cannot guarantee that a man will prove satisfactory. Great care is exercised in selecting the man for the job. No man is sent out who has not had farm experience and every man is questioned closely as to what his experience has been and what kinds of work he has done. If a man who claims to have worked with horses on a farm does not know the difference between the hames and the bridle of the harness, it is assumed that he is not telling the truth and he is not sent out.

In making application for help, the farmer should be careful to state the age and nationality of the man desired; the wages to be paid, the kind of work to be done; whether or not he wishes a married or a single man, and the probable duration of the employment. All of the conditions of employment should be made very definite in the order. This will save time and possible misunderstandings. It is fair to say that the offices have been very successful in placing men who "made good." During one year in which some 2000 men were placed, less than half a dozen complaints were received. It unfortunately happens occasionally that there is dissatisfaction. Sometimes this is due to the shortcomings of the man and sometimes to those of the employer. There is no possible way for the offices to avoid this and prevent an occasional misfit.

After the application is sent to the employment office, the farmer should notify the office promptly when a man is hired. This is necessary in order to avoid sending men out on expense only to find that the job has been taken and also to avoid any liability for damages on the part of the person giving the order.

In case the farmer needs a man on a hurry order, he may use the long distance telephone and the order will be attended to promptly. The Milwaukee office has by far the largest number of applicants for farm work. A farmer needing help might arrange to visit the office and look over the applicants before hiring. If he contemplates doing this, it would be a good plan to write to the office asking advice as to when to make the trip.

The offices have frequently been able to fill orders for married couples to take charge of both farm and housework.

Of late the industries have been using a largely increased number of men. Applicants for farm work are therefore less numerous than formerly. For this reason an office may be unable to fill a given order promptly, and occasionally, may be unable to fill it at all. Up to date, however, they have been able to fill a very large majority of orders. Following are the addresses of the different offices:

Free Employment Office, 241 Fourth St., Milwaukee, Wisconsin.

Free Employment Office, City Hall, Oshkosh, Wisconsin.

Free Employment Office, City Hall, La Crosse, Wisconsin.

Free Employment Office, 813 Tower Ave., Superior, Wisconsin.

GROWING GRAINS FOR EXHIBITION

H. T. DRAHEIM, Gotham

There are many different ways of growing and preparing grains for exhibition, but from my own experience I found it necessary to first study the soil and sow the seed that is best adapted to my particular soil and climate. There is just as much difference in pure bred seed grain and common variety of seed grain as there is between pure bred stock and common variety of stock. I don't think any exhibitor would try and improve his stock with a scrub sire nor try to improve his grains by growing the common variety of seed. So I would advise every exhibitor to grow nothing but pure bred seed grain.

Then how to prepare the soil—you all know what rotation farming means, clover, corn, oats or barley. Each crop to be on the land one year. I do all my plowing in the fall for small grain and in the spring give a light disking and harrowing several times. Go over the ground with a planker or roller as this will crush all the lumps and leave a fine dust mulch. You will be surprised to see how even the grain will come up and also how even it will grow until harvest time. Clean your grain well with the fanning mill and treat for smut with the formalin, then sow it with a drill.

I cut when ripe but not too ripe, as grain will lodge and shell out if left too long uncut. When shocking always make a long shock, a dozen bundles are plenty. Some prefer a round shock but I have found in wet weather the long shock

dries out better and the grain will not get moldy or color as quickly as in the round shock. Stacking is very important also, but see that your grain is fit, as it will heat and discolor if stacked when wet. After proper care has been taken with your crop you will be surprised to see how bright are the grains.

Now, I am sure every exhibitor feels proud of his blue ribbons, for it means as much for his grain as A. R. O. records mean to a stock breeder. I think every farmer should exhibit grain at the County Fair or at the Annual Grain show at Madison. It gives the exhibitor a chance to study the true types of corn, also the prize winning grains and sheaves, and if you win a blue ribbon it is a good boost for your community. Then when these samples win at National Grain Shows it brings more credit to our state and it shows the good work done by the Agronomy Department in developing these pure bred seed grains, which are carrying off the highest honors wherever exhibited.

Growing good corn for exhibition is a rather harder proposition and is something that cannot be accomplished in a few years. I think there isn't any variety of seed neglected so much as corn. A great many farmers get in a hurry about planting time and neglect to do the work properly. If about half of the corn comes up then they will replant with almost any kind of seed whether it be flint or scrub. They are not very particular but expect good corn and to win prizes at that. Such corn will get mixed and may not even mature. Some ears will be ripe, others only dented, while some may be nothing but small nubbins.

Now start right and don't think that just because you grow white corn, it is the true type of Silver King (No. 7). I am sure you would not think just because you owned a cow that had black and white spots, she was a pure bred Holstein and a true type of a dairy cow. First get the variety best adapted for your climate and locality and plant the true type of seed corn.

Plant on manured clover sod. Fall plow and give a double disking and a good harrowing. Then plank before planting as this will leave the ground even and smooth. Have every ear of corn tested before planting. Wait a few days, then harrow again as this will break the crust that forms after

rains. Dragging will help while corn is small. First time cultivate rather deep, then after, cultivate shallow.

When your corn is ripe select your seed ears only from the stalks that have matured evenly and have the very best ears. Now select the best ten ears you can find and enter them at your County Fair or Grain Show. But don't expect a blue ribbon the first time or be disappointed if you don't get one. There is glory in defeat.

From here on you will have learned a lesson and get real interested, so try a few ears in a special seed plot, or ear to row method, any way to grow prize winning corn. You will be surprised to see that there is more to learn about growing and selecting prize winning corn than you expected. Now I hope the readers will not think me a book farmer for this is the method I used in growing the grain that won the most blue ribbons at the Annual Grain Show last year.

COÖPERATIVE MARKETING OF LIVE STOCK

R. M. ORCHARD, Muscoda

For several years the marketing of live stock was an interesting problem to me. It had always seemed to me that there must be some method by which a farmer could get his live stock to market without putting a profit into the pocket of a local stock buyer. It had seemed to me that the farmer was the one man that "got his," both going and coming. I know of no place in marketing that the farmer sets the price upon his product. In other lines of work, the producer usually sets the price on his wares.

Prosperous farmers in every community have for years shipped their own stock to market provided they were fortunate enough to have a carload. In our little community we reasoned that if it was profitable for the farmer who had a carload to ship his own live stock it would be profitable for several farmers to go together and make up a carload and ship it. Our experience has proven that our reasoning was correct and that all that was needed was an organization and system to make it effective.

Our organization is a very simple one and consists of a group of farmers who have agreed between themselves to

ship their live stock together. This group of farmers got together in November, 1913, and decided to give the plan a trial and selected a President, Secretary-Treasurer or Manager, and Yard Man.

A farmer who desires to ship live stock with us must list his stock with the manager. The manager keeps a book on his desk in which he puts down the name of the farmer, the number of animals he has to ship, the kind of animal and the approximate weight. One farmer may have a dozen hogs, another twenty hogs, another one hog, another a calf, another a cow, etc. When the manager sees from his record book that he has a car of hogs or a car of cattle or sheep as the case may be, he steps to the telephone and calls the railroad company and tells them he wants a stock car on a particular day. He then calls up the various farmers that have stock listed and tells them that on a certain day they can bring in their stock.

On the day appointed, the stock is received at the yard by the man hired for that purpose, who weighs the stock and marks it. He keeps a list of the stock brought to the yard, the weight and the mark that has been given each shipper. The stock is then loaded and shipped either to Chicago or Milwaukee, depending upon the size of load, the quality of the stock, etc.

When the stock is received at the central market it is unloaded, fed and watered. If it is a shipment of cattle the cattle are sorted according to owners. If it is a shipment of hogs, they are sorted according to grade. It is possible to sort hogs according to owners also, but the result is a heavier shrinkage than by doing the other way. The live stock is sold and weighed and the commission house to whom the stock was shipped, deposits the money in a bank to the credit of the Shipping Association the day the stock is sold.

You may ask how does the commission man know how to sort according to owners? My reply is, the manager prepares a shipping bill the day the stock is shipped, setting forth the name of the owner, the weight of his animals and the mark. This shipping bill is mailed to the commission house handling the stock in the central market and reaches there as soon or sooner than the shipment of live stock.

After the sale in the central market the commission house makes a report of the sale to the manager of the association.

in which he sets forth the amount charged for freight, yardage, commission, insurance and feed, and this is deducted from the gross amount of the sale. Upon receipt of the report from the commission house the manager prepares his sales sheet in which he sets forth the home weight, the central market weight, the central market price, what the individual's stock brought at the central market, the individual's share of the central market expense, the charge against the individual for feed put in the car at home and the charge against the individual in the way of commission to defray home expenses, and the net amount due the individual. He then prepares a statement for each individual and draws a check for the amount due the individual on his shipment.

It is a very simple matter to make out the sales sheet for a shipment of cattle because each man's cattle are weighed separately at the central market. In the case of hogs this is not the case and it is necessary to prorate the shrinkage using home weights as your basis. The central market expenses are prorated on home weight, but it can be done on the central market weights just as well.

The charge for feed put in the car before the car leaves the home market is based upon the number of animals in the car. In the case of hogs the usual charge is from five to eight cents a hog depending upon the amount of corn put in the car and the number of hogs in the car. To cover the home expenses and create a small reserve fund each shipper who belongs to the association is charged three cents per hundred, upon cattle and hogs and fifteen cents a head on calves. If the shipper is not a member of the association he may ship with the association by paying five cents per hundred commission on cattle and hogs and twenty-five cents a head on calves.

The revenue raised in this way goes into the treasury of the association and pays the manager his salary, the yard man and his helpers for their labor, and the losses that occasionally occur through the loss of an animal by death enroute or the lessened value due to being crippled enroute. To charge the loss of a hog up to the car in which it was shipped would be a great hardship on the other fellows who happened to be unfortunate enough to have hogs in that car, but by our method the individual shipper does not know that there was a loss unless he happens to see the sales sheet that comes from the central market.

The Experiment Association stands for a well balanced agriculture and most of the members believe in pure bred cattle as well as pure bred grains.

Pedigree rye grows very well in the northern counties. Field on the farm of John Swartz, Langlade county.

Now, what about results? During the past year we shipped fifty-six carloads of stock as against forty-three in 1914. One hundred and fifty-five different farmers used the association during the year 1915. One individual shipped with the association during the past year, nine different times, others six times, some five times and so on down to those who tried it but once with the assurance that they would come again and that they were well pleased with the results.

It is a difficult matter to say how much money has gone into the pockets of the farmer that would not have gone there had he sold his live stock at home, but I believe I am safe in saying that from five to twenty-five cents per hundred more. I have had men tell me that they have made twenty-five dollars on a single shipment, but I believe these to be extreme cases and very rare. The shipper stands a chance of losing as well as gaining unless the manager watches market conditions quite closely. If the load of stock gets into the central market and strikes a drop of twenty-five cents per hundred, the shipper will probably wish he had sold to the local buyer.

Time does not permit me to go into the subject of preparing stock for shipment and other phases of the subject. But I find that the farmer who is using the association is watching the market closer than he ever did before and is getting to know live stock values better than he did before and you cannot offer him any old price for his stock and expect him to take it.

THE GRAIN DEALERS' CONVENTION AT PEORIA, ILLINOIS

B. D. LEITH, MADISON

The nineteenth Annual Convention of the Grain Dealers' National Association at Peoria, Illinois, on October 11-13, 1915, was a very important meeting from the standpoint of the grower or dealer in grain.

On this program were brought together several men of national prominence. Dr. J. W. T. Duvel spoke on the Standardization of Grades for Wheat and Oats. Congressman R. W. Moss, of Indiana, author of the Moss Bill on

grain standardization, explained the principles of his bill and the present status of the measure. Senator L. Y. Sherman of Illinois gave a splendid political address along lines of the grain dealers' interest. Prof. G. I. Cristie, of Purdue University, gave an address on "Corn". Prof. Livingston, of the Office of Markets and Rural Organization, U. S. Department of Agriculture, presented some of the problems of this department to the meeting. Mr. L. Duvel of the U. S. Department of Agriculture, presented an interesting paper on "Agriculture in Argentine."

With such an array of material on the program it will be impossible for me to do any more than refer to a few of the items of especial interest to grain producers.

Dr. Duvel's article dealt with the different factors concerned in grading of wheat and oats. The moisture content is a very important one. When the moisture content reaches 14 per cent there is danger of the grain becoming musty. The average moisture content of No. 2 oats at Chicago from 1911 to 1915 was 11.1 per cent. Wheat might be allowed a slightly higher moisture content for No. 2, but in no case should it go above 13 per cent. The trade terms commonly used, such as "dry", "reasonably dry", "damp", etc., allow of too much latitude. During the past season these terms were interpreted very liberally and in some cases wheat graded as No. 2 carried as high as 15 per cent moisture. He suggested the advisability of fixing the grades on the basis of quality and having each certificate show the limit of moisture for the lot of grain in question. Corn is often bought on this basis now and wheat and oats will likely be purchased on that basis in the near future. While the differences in per cent of moisture between the suggested grades are small, yet the moisture is a definite and valuable index of quality.

The dockage system of spring wheat has some advantage in that the producer knows the quantity of dirt and weed seeds in his grain and he can remove it himself if he thinks profitable. This plan will also tend to do away with the practice of adulterating grain with screenings.

Small mixtures with other grains in these market classes offer little difficulty. A small allowance is made for such mixtures, such as might come under ordinary handling on the farm or in the elevator. Just what allowance should

be made in each case for foreign grains is not easy to determine. They should at least be so determined as to discourage mixing.

The difficulties resulting from mixing different kinds of wheat were discussed. Some No. 1 durum samples have been carrying as high as 10 per cent and 15 per cent of common spring wheat. Wheat badly mixed with other kinds should be classed as mixed wheat. The difficulty that presents itself is whether a stated amount of mixture of other wheat should be permitted to allow it in a certain grade. If a certain amount of cheaper wheat is allowable, it will always be found.

The cost of treatment of smut was then discussed. Of the crop of 1914 wheat of the Pacific Northwest, as judged from 1000 representative samples, 42.8 per cent was damaged sufficiently by smut to cause a loss of $500,000 on the crop.

While the Department of Agriculture has been making an exhaustive study preparatory to fixing the standards on wheat and oats, it seems unwise to do so until the enactment of suitable legislation providing authority to effectively supervise the application of such standards.

The "Moss Bill" as outlined by its author can be divided into three parts: the preparation and publication of uniform standards of quality and condition of grain by the United States Government; the coördination of all existing systems for grain inspection with the newly created Federal system; and the establishment of a general supervision by the Federal Government over all grain moving in interstate and foreign commerce for the detection and publication of all fraudulent practices.

Under this bill the Secretary of Agriculture would be directed and authorized to investigate the handling, grading and transportation of grain and to fix and establish the grades for corn, wheat, rye, barley, oats, flaxseed, and other such grains that may seem advisable.

Under this bill there needs to be no duplication of inspection by state and U. S. officials. There is no reason why the state inspector cannot be selected from the list of eligibles for government inspector, thus his inspection would serve for state and federal government as well.

As a great deal of the grain handled is interstate traffic, it becomes a problem to secure uniformity when each state

makes its own rulings regarding grain inspection. This bill vests the power of supervision of such shipments in the national government. Disputes regarding conformation to standards may be referred to the Secretary of Agriculture.

Grains sold by grade and not by sample are all that are affected by this bill. While there is still much to be desired regarding legislation on matters pertaining to grain trading, this bill is a step in the right direction.

Professor Christie emphasized the need of constant selection in corn. He drove home the point by showing that while it cost approximately $13 per acre to grow corn, it is the corn that yields 70 or 80 bushels per acre which is giving a margin far above the cost of production, and the man who is growing corn that yields 20 bushels per acre is paying for the fun of growing it.

Professor Livingston in explaining the functions of the Office of Markets and Rural Organization presented several misconceptions that had arisen between the producer and dealer in grain.

The problems of the grain trade, according to his statements, are:

1. The cost of handling grain through the country elevator.
2. Too many elevators.
3. Contracting for grains with farmers and storing them.
4. Weight and scale testing.
5. Interpretation of price quotations.

He states the objects of the department to be "acquiring and diffusing among the people of the United States useful information on marketing and distribution of grain, seed and hay, and thus bringing about a better understanding between the people who produce, distribute and consume these products and to assist them to solve the problems they encounter."

ALFALFA SESSION

Given Under Auspices of Alfalfa Order of the Experiment Association

PRESIDENT'S ADDRESS

ALFALFA IN REVIEW

JAMES B. CHEESMAN, Racine

Today we reassemble to pass on the work of another year. Much work has been projected, a good deal has been accomplished and much more remains to be done. Alfalfa is a most generous plant, it has promised much, it has done more than it has promised. It is a splendid servant. Its exceptional character has fitted it for a place on most farms worthy of such a name and on many farms not worthy of the name. It has taught lessons of forethought, thrift, industry and loyalty unknown to any other farm plant. It is also a forceful master. It will not dwell in an uncongenial environment. It insists on a soil deep enough to accommodate its root system for at least three or four years, and one without excess of water, free from acidity, and having at least a small amount of inoculation if the plant is to earn money in a reasonable length of time. We are not here to talk over failures, although our secretary's report may say something on that phase of the work. When a man fails we know that he has missed his mark in alfalfa culture.

During the year we have had many opportunities of seeing alfalfa growing and harvesting in various parts of the state and also in other states. Every year sees some new practice in soil treatment and seeding, for the double purpose of making available a larger proportion of soil surface and also for obtaining the most favorable seed bed for germination and a vigorous stand.

The unusual economic condition caused by the European war has created a situation inviting and fascinating to every stockman throughout the world. Speculation as to Europe's agricultural needs is quite unnecessary, and one does not

need to be a prophet to know that Europe has, and will have, much greater agricultural needs as the years roll by. What demand those wants may make on the United States will be very much of a banker's problem before they can reach the American farmer. The question of finance and the credit involved are stupendous in their magnitude and most far-reaching in their import. Think of the awful destruction of meat and dairy animals, of the lessened output of meat and milk. Pause for one moment and ask yourself who can supply the field tools destroyed. The enormous demand that will arise for farm tractors and modern implements of every type, style and capacity. In our own country where labor conditions are seldom less than strenuous the emergency is always a present status and the transition period is our normal state of existence. Alfalfa growers of eight to fifteen years' experience are finding an annual stock-taking of their practice a most needful precaution to their expansion and success with this plant. It is quite certain that the man who has been caring for ten to twenty acres finds he must adapt his practice to larger areas by remodeling and readjustment of working methods. The tools used on small fields are out of place and quite insufficient when you are dealing with sixty to one hundred acre areas. The man who grows large areas of alfalfa must early learn to be open-minded and flexible enough to think radically and change quickly when change is needed. The place which alfalfa will have in the stock industry raises the question of the feeder's ability to learn the needs of animal nutrition. The men who have profited most from alfalfa feeding on old settled farms have been careful students of feeding economics. Before any one may pose as a breeder of live stock he must be a successful feeder. In dealing with alfalfa in the cured condition we must first of all ask what is our purpose and what our sources of food supply and the end to be sought. Remember that all breeders of animals have usually been good feeders. According to the latest information our annual increase of live stock is not quite as rosy as it might be and it remains to be seen whether we can do very much in the export business after the close of the war. If we cannot all find enough pure bred animals then we may do the next best thing and use good grades. First of all we must learn to feed well before we can mold and fashion animals to

conform to the type and style embodied in the best models. It is an established fact that the effect of judicious feeding will go far to produce desirable animals for breeding and by an early use of well selected leafy alfalfa, animals' stomachs may be appreciably enlarged and their digestive capacity increased. I have in mind a Wisconsin breeder who depends mainly on alfalfa for roughage and his chief source of protein. This man's name is well-known throughout the state as one of the most successful breeders of dairy animals.

Let me here invite your attention to the most interesting piece of work of recent date in Iowa. As you know Iowa is the greatest pork producing state. Professor John M. Evaard and Russel Dunn conceived the idea that what had been so well done with self-feeders in the poultry yard and with sheep and cattle had other applications. He started out with the idea that if certain well-known feeding stuffs were placed in properly designed self-feeders swine would select on a cafeteria plan just what their physiological needs seemed to dictate and economical results followed.

Under the seductive title of: Feeding Unborn Pigs the Alfalfa Way, the experimenter placed in the proportions known to be acceptable to pigs the feeding materials. Then for check or control some groups were fed their protein in the form of meat meal, and some in the form of buttermilk. The most interesting and surprising results were the effect of protein feeding on the numbers, size and quality of the litters. This experiment goes to show that the number of pigs from sows fed rationally was almost double as compared with exclusive corn fed sows. Then the cost of feed per day was highest on corn and lowest on alfalfa, while the quality of the litters was much the lowest on exclusive corn feeding and highest on alfalfa.

Let us prepare ourselves for better husbandry. Surely there is no excuse for waste. We ought to test by weight and measure the quality and net value of all we produce and hold ourselves accountable for the best available and the highest quality of farm work. In alfalfa we have the most profitable farm plant. All we need to do is to adjust ourselves to its needs by learning all that we may, and by assisting in every way practicable the work of our Order in the agronomy department in this city and the field work conducted throughout the state of Wisconsin.

SECRETARY'S REPORT AT FOURTH ANNUAL MEETING OF THE ALFALFA ORDER OF THE WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION

L. F. GRABER, Madison.

I am glad to report on the four years of progressive work of our state alfalfa growers' association. Mr. Cheesman, our worthy president, and Prof. Moore conceived the idea four years ago that the alfalfa industry of Wisconsin should be represented by an organization which should stand for the advancement and promotion of alfalfa growing in Wisconsin.

The work started with a small charter membership of 21. In less than three years, over 1,350 joined the ranks to assist in this organized effort to place alfalfa on the rural map of the State of Wisconsin. Our Wisconsin Alfalfa Order is somewhat different than other state alfalfa growers' associations. We are not a "Booster Association." To be sure we stand for the encouragement of more alfalfa growing in Wisconsin, but rather than induce a man to grow alfalfa without making him realize the importance of inoculation, of testing his soil for acidity, of liming sour soils, of proper preparation of the seed bed, right methods of planting, and getting the soil in proper condition—in a word, if he does not appreciate the importance of giving alfalfa a *square deal*, we would rather not have him attempt to grow alfalfa at all. He will have better luck and success with timothy and perhaps with clover. The greatest drawbacks to the extension of alfalfa growing in Wisconsin today are the failures of those who take a "chance" on getting a catch of alfalfa by seeding it most any old way without regard to the requirements of the crop. I have in mind one of many incidents that illustrates this point. In one of the richest sections of Southwestern Wisconsin a farmer seeded twenty acres of alfalfa. He limed the land, inoculated, carefully prepared the soil but seeded his alfalfa the first week in September. His alfalfa was a failure. The next year he only secured seven loads of hay from his twenty acres. Why? Because he seeded his alfalfa too late in the summer and most of it winterkilled. It should have been sown the first part of

July or August. Still the result of this failure was that the vast majority of farmers in that section have not attempted to grow alfalfa. "Why," they say, "so-and-so over there tried out twenty acres and he only got seven loads from the whole piece! Alfalfa is not adapted here. It's a Western crop." And so the unfavorable sentiment prevails as a result of one man's mistake in trying to grow this crop. Now the purpose of our Alfalfa Order is to encourage alfalfa growing in Wisconsin by preventing just such mistakes. Rather than shouting from the hilltops and tree tops—"More alfalfa growing in Wisconsin"—our motto is "Grow alfalfa and grow it right." Give it a square deal if you want it to treat you square. And when I see a man who is about to grow alfalfa for the first time and who does not believe in lime for sour soil and does not believe in inoculation, I say he had better not grow alfalfa. Members of the Alfalfa Order, if farmers understood alfalfa better, more alfalfa growing would result. It's our business to make them understand it.

ALFALFA SEED DISTRIBUTION

In lieu of this policy our association during the first three years of its existence purchased coöperatively a vast amount of alfalfa seed which was distributed among over 1500 farmers for experimentation and for the purpose of determining with what general success alfalfa was being grown in Wisconsin. Furthermore, the reports of these tests, representing the experiences of farmers in all parts of the state have afforded us a valuable fund of field information to combine with the results of our experiments on the Station Farm. Here lies the most valuable part of the work of the association.

I wish at this time to give you a brief summary of the results with the alfalfa seed disseminated in the spring of 1914, when 796 farmers were supplied with various kinds of alfalfa seed. To date 487 reports have been received. The following shows the percentages of successes and failures throughout the state on this comprehensive test.

ALFALFA SEED DISTRIBUTED SPRING OF 1914

Per cent of growers having good success	59%
Per cent of growers having fair success	22%
Total	81%

Per cent of growers securing poor stand	7%
Per cent of growers reporting failures	12%
Total	19%

Why 12 per cent failures and 7 per cent poor stands? Forty-four per cent of these failures were due, according to the reports of these farmers to a need of lime and inoculation.

Members of the Alfalfa Order, I have received many reports on alfalfa growing in Wisconsin during my secretaryship of this organization and it is the same thing every year—the two greatest factors causing failures of alfalfa growing in Wisconsin are a *lack of lime and inoculation.*

Other causes for failures in order of their importance are as follows:—

DIFFICULTIES AS REPORTED BY THOSE HAVING FAIR STANDS, POOR STANDS, AND FAILURES

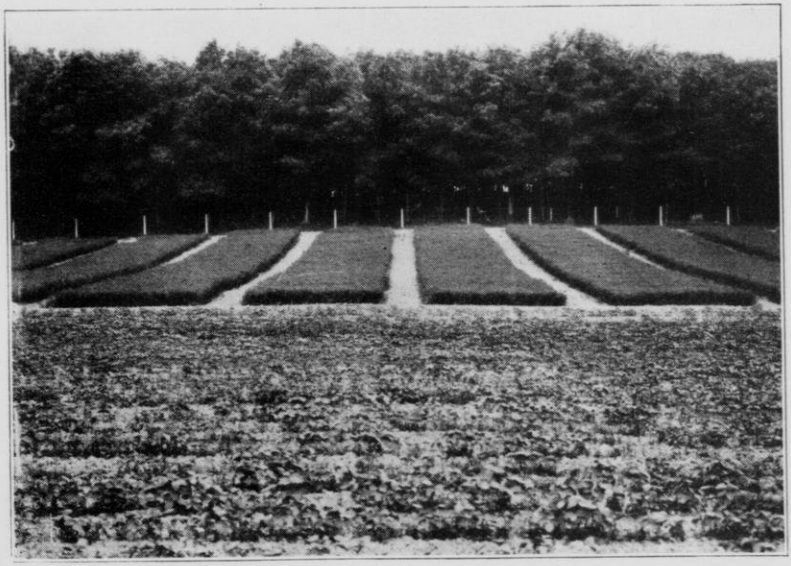
1. Poorly drained flat land.
2. Nurse crop too thick, (more than 1 bu. per acre).
3. Early spring freezing and thawing; ice sheets.
4. Land of poor fertility.
5. Weeds and poor preparation of seed bed.
6. Crowded out by blue grass.
7. Drought after nurse crop was harvested.
8. Lack of snow covering.
9. Loose seed bed due to late spring plowing.
10. Late fall cutting or pasturing.

RATES OF SEEDING.—10 OR 20 LBS.—WHICH?

In addition to the work of obtaining the general experiences of alfalfa growers in Wisconsin, our members are conducting specific experiments. Not among the least of these is the test now running for two and three years, on the much disputed question of the proper rate of seeding alfalfa. In 1912 and 1913, a number of tests comparing ten and twenty lb. rates of seeding were conducted by the members. The reports received this fall of 1915 on these experiments are as follows:—

1 2

Late fall cutting lowers the vigor of the following spring growth.
(1) 22 inches high. Taken from field where third crop was cut Sept. 2, 1914.
(2) 17 inches high. Taken from field where third crop was cut Sept. 26, 1914.



Winterkilling and yield tests on Kansas, Montana, Dakota, Nebraska, Grimm and other strains of alfalfa on Experiment Station Farm. Trials with these varieties are being made on the farms of several hundred members of the alfalfa order in all parts of the state.

SUMMARY OF REPORTS BY MEMBERS OF THE ALFALFA ORDER ON TESTS WITH 10 AND 20 LB. RATES OF SEEDING.

(Reports received September, 1915.)

Questions asked members who conducted the test	Replies	Started 1912		Started 1913		Average, 1912 and 1913	
		No.	Per cent	No.	Per cent	No.	Per cent
Did weeds and Blue grass cause greater trouble with 10 lb. rate?	Yes	20	69	30	91	50	81
	No	9	31	3	9	12	19
Which alfalfa gave the best quality of hay?	No. diff.	5	19	4	13	9	16
	10 lb.			2	6	2	3
	20 lb.	22	81	25	81	47	81
Which gave the thickest and best stand?	No. diff.	4	14	2	6	6	10
	10 lb.						
	20 lb.	25	86	32	94	57	90
Which gave the best yield?	No. diff.	4	13	1	3	5	8
	10 lb.						
	20 lb.	26	87	32	97	57	92
Which is best rate of seeding on weed free, not acid, inoculated and carefully prepared soil?	No. diff.	1	4	1	3	2	3
	10 lb.	2	8	6	19	8	14
	15 lb.	9	34	12	38	21	36
	20 lb.	14	54	13	40	27	47
Which is the best rate of seeding where alfalfa is seeded for the first time on soil fairly well prepared but somewhat weedy?	10 lb.			1	3	1	2
	15 lb.	2	7	2	6	4	7
	20 lb.	22	82	29	88	51	84
	25—30 lbs.	3	11	1	3	4	7

The matter can be summed up by stating that the best yield and quality of hay is secured by planting 20 pounds of alfalfa seed per acre and that with the ten pound rate, the weeds and blue grass cause serious difficulty.

These results coincide very closely with the reports on the same experiments received in 1913 and 1914, which were published in the second and third annual reports, experimental evidence gathered on the Station Farm and with the reports received in 1913 and 1914 on these same tests. Naturally the farmer would prefer a lighter rate of seeding such as 10 lbs. per acre if good results could be secured because it would lower his cost of seeding quite materially. In spite of this the farmer's verdict is in favor of 20 pounds per acre, especially where alfalfa is seeded for the first time. The time may come when our lands will become so well adapted to alfalfa growing that 10 or 12 pounds per acre will be sufficient, but obviously this time has not yet arrived in most sections of the state.

SOUTHWESTERN OR NORTHERN GROWN SEED—WHICH?

Just what effect the kind of seed has on the winterkilling of alfalfa stands is an exceedingly important problem which is now being worked out by the members of the Alfalfa Order. Southwestern grown alfalfa seed has generally been considered less hardy than that produced in the more northern states where winters are more rigorous. While sufficient work has not been carried on to definitely determine this matter, reports and experiments conducted so far seem to indicate that Kansas and Nebraska and other southern seeds may be adapted to our conditions. Excellent seed can be secured from the southwest and in dry years when there is a big crop it sells for from two to four dollars less than the northern grown strains. If southwestern grown seeds are hardy here in Wisconsin, it is of great importance that our alfalfa growers should know it. In view of this, a year ago two pounds of Oklahoma grown seed were sent to a number of the members, for growing and comparison with northern grown alfalfa seed. Thirty-eight reports on this test which has now been running two years,* are summarized as follows:

REPORTS ON SOUTHWESTERN GROWN ALFALFA SEED PLANTED SPRING OF 1913, BY MEMBERS OF THE ALFALFA ORDER IN COMPARISON WITH NORTHERN STRAINS. (REPORTS RECEIVED FALL OF 1915.)

Questions	Answers	Numbers	Per cent
Has southwestern alfalfa seed winterkilled?.....	Slightly	1	3
	Yes	7	19
	No	29	78
Has northern grown alfalfa along beside it winterkilled?	Slightly	3	8
	Yes	4	11
	No	30	81
Which gave the best stand and yield?	No difficulty	24	70
	Southwestern better	5	15
	Northern better	5	15
From your experience with this test what do you think of southwestern grown alfalfa seed for your vicinity?	O. K.	20	72
	Superior	2	7
	Slightly inferior	4	14
	Noticeably inferior	2	7

* See third annual report for first year's results of this test.

In analyzing this data it is clear that for the second year there was little difference in the winterkilling of the southwestern and northern grown alfalfa seed. At least it can be said that the southwestern grown alfalfa has proven itself practically as hardy and productive as the seed from more northern states.

TESTS BEGAN SPRING OF 1914 ON KANSAS, NEBRASKA, DAKOTA, MONTANA AND GRIMM ALFALFA SEED

A more comprehensive state wide test was begun in 1914, when approximately 116 members were supplied with Nebraska grown seed, 96 with Kansas, 111 with Dakota and 10 with Grimm alfalfa seed for comparison with two kinds of Montana grown seed.

There was little difference in the growth and stand of the two kinds of Montana Alfalfa seed No. 1 and No. 2. No. 1 seed came from a very old field in Montana and No. 2 from newer fields. Of the 453 reports, 99 per cent could see no difference and about 1 per cent declared that No. 1 produced a little better than No. 2.

DAKOTA ALFALFA SEED O. K. FOR WISCONSIN

Those trying Dakota seed found it to be very satisfactory in this first year's trial. Out of 49 reports received to date, 82 per cent declared it equal to and in every way as good as Montana and 9 per cent thought it was better than Montana and 9 per cent thought the Montana better than the Dakota.

KANSAS AND NEBRASKA SEED GIVE GOOD RESULTS WITH FIRST YEAR'S TRIAL

Seventy-two reports from members trying out Kansas and Nebraska alfalfa seed indicate that at least for one winter the Kansas and Nebraska alfalfa seeds have proven to be as hardy and productive as the northern grown alfalfa seed. Sixty-three per cent of these reports declare that the Kansas and Nebraska alfalfa seed are equal to Montana and Dakota seed; 14 per cent thought Kansas and Nebraska seed better than Montana and Dakota seed, while 23 per cent felt that these seeds were inferior to Montana and Dakota grown strains.

One hundred and seventy-six of the members who were not conducting this test gave their opinions and experience as to the value of Kansas and Nebraska alfalfa seed for Wisconsin conditions.

Of these 80 per cent reported favorably while only 20 per cent felt Kansas and Nebraska alfalfa seed were not as hardy as the Montana grown strains.

It would seem that the results of these tests indicate that on the whole, Kansas and Nebraska grown alfalfa seed will prove to be adapted to Wisconsin conditions.

In conclusion let me invite those of you who have not already done so to join our organization. The membership fee is only 25 cents. We furnish our members with litmus paper for testing soils and keep you informed in our reports and bulletins as to latest facts on growing alfalfa—how to get good stands and how to prevent failures. Let us have your coöperation to keep up this work and gain all the information necessary to place the alfalfa industry of Wisconsin on a firm and lasting basis.

ALFALFA GROWING IN SOUTH DAKOTA

A. C. JOHNSON, GEN. TRAFFIC MANAGER,
CHICAGO & NORTHWESTERN RY.
Chicago, Ill.

Contrary to popular belief, Alfalfa really is of such ancient origin as to give it precedence, in continuity of production, as a domestic forage plant. An unbroken line of production from such remote period of several centuries, covering such wide and different conditions with such slight difference in kind and quality with wide range of conditions, places it in a distinct class by itself, not only in the legume family, but in comparison with all other farm production of either plants or cereals.

Alfalfa originated in Asia and was carried by the Persians into Greece during the fiftieth century B. C. It was in Italy the first century A. D., and was in Spain during the eighth century A. D. and taken by Spaniards to Mexico and South America in the sixteenth century, being introduced in England about 1560, and thence throughout Europe and

South America generally. Thus it had grown continuously in all foreign countries many centuries before it was introduced in the United States. It has a well-established record of about 2400 years from its first recorded existence to the present time.

It was brought from England to New England shores about the year 1600, but it was not successfully produced, and the continuous history of Alfalfa in the United States dates back only 62 years, though it is possible it has a longer period of production of which there is no record. It was brought from Chili to California during the year 1854, or 62 years ago, and was carried by Mormons from lower California to Utah and was there produced in the Salt Lake Valley. It was brought from Germany to Minnesota in the year 1857, or 59 years ago, and it was from these two original lots that much of the early seed was secured, although many importations have been made during late years.

In foreign country production it had its varied progress in periods, covering such a wide range in years that it proves conclusively the fact that its progress was not rapid in the aggregate. In the United States its progress was prior to a dozen years ago in certain periods and certain localities, and while being produced in localities for more than half a century in the United States, in other than irrigated sections, it was not considered a staple crop, generally, until within the past very few years.

There was obstruction to certain progress of Alfalfa, which we will briefly recite. First; Its real value and uses were not fully known. Second; It was considered an irrigated plant only; and third, and most in importance, was the failure to thrive on account of improper methods of cultivation. The first two we will pass briefly, as the value and use of alfalfa have been generally determined and are now understood; but while it is conceded to be a valuable irrigation crop, it is also an established nonirrigated crop. We think the greatest barrier to progress in the past has been the improper method employed in cultivation and production.

We have visited Alfalfa fields in many states and localities in the United States. Its growth is increasing rapidly in California, New York, Montana, Louisiana and in every latitude and climate in the United States, as it is in Siberia,

Germany, France, Italy and Cuba; so that Alfalfa is not only a national but an international production of comparative known value, (not to the exclusion of other farm forage crops, but in connection therewith,) it is possible that its popularity may be a further menace to its successful production, by a disregard of proper method, selection and care. The real problem, as we view it, is method in production.

We have some knowledge of the work and progress of Alfalfa production in the state of Wisconsin. No state or locality has a greater opportunity. With its large acreage yet uncultivated, it is our prediction that the production of Alfalfa, by modern methods, will be an agency that will add more wealth to the state in crop production value, soil fertility, attendant other production, and last but not least the value of farm acres in the next ten years than has been done during the past thirty years, which net results will accrue to the average present generation.

PRODUCTION IN STATES

California undoubtedly produced the first Alfalfa in the United States, but some other western states were early producers. Minnesota began production in 1857, in Carver County. The early plantings were successful and the seed in such localities has proved very valuable. The fact that it has had long and continuous climatization in same location has made it valuable, not only in such locality but also in other localities where climatic conditions are similar. The history of Grimm's Alfalfa, produced in Carver County, Minnesota, first, and continuously to date, is given as follows:

"In that year (1857) there came to this country from the little village of Kulsheim, near Wertheim, in the Grand Duchy of Baden, a German farmer named Wendelin Grimm. Like many of his countrymen Grimm went West, taking up a farm in Carver County, Minnesota.

"Among the few possessions that he brought from his old home with him was a small bag containing less than twenty pounds of seed of the Alfalfa, or lucerne, commonly cultivated in Baden. Grimm applied numerous local names to this Alfalfa, but most commonly he called it 'ewiger Klee' (everlasting clover) referring to its permanent nature.

"This small lot of seed was the progenitor of an Alfalfa industry that has existed in Carver County, Minnesota, for more than a generation and which is now being extended into other parts of the northwest."

This gives briefly the origin of the hardy alfalfa which is now well and favorably known under the name of the Grimm Alfalfa.

Captain Seth Bullock of Deadwood fame, an intimate personal friend of Ex-President Roosevelt, from early frontier days, and whose friendship we are proud to possess, was the first Alfalfa producer in South Dakota, and the original field sown in 1881 has today an excellent stand, after a period of 35 years' growth. The farm has been continuously owned and operated by Captain Bullock from 1879 to date. During the 70's Captain Bullock was a guard of shipments of gold to Denver. He saw the plant growing in Utah and secured his seed from that source and sowed it at Belle Fourche in 1881.

The Belle Fourche field sowed by Captain Bullock is the first production in South Dakota of which there is authoritative record, and it has been our privilege to see this and other crops in that vicinity. This seed spread slowly, as there were few ranchmen to adopt it. The very abundant wild grasses were sufficient for necessities, but gradually some ranchman would sow some Alfalfa and it is from this original stock that most of the seed has been produced and shipped. During the year 1914 there was shipped, I think, 65 carloads of seed from South Dakota. Last year was an exceedingly bad year for seed maturity.

NECESSARY REQUIREMENTS

Few if any farms are physically adapted in their entirety to the successful production of Alfalfa, and yet practically every farm has sufficient acreage, if selected, to produce a required amount. The tendency is, when poor selection is made and failure is a direct result, to retire from further effort with the conviction that the locality is not adapted to its cultivation, and in other cases, where favorable results are secured by accidental selection, to greatly increase the acreage and include acreage physically unsuited for the purpose—all of which makes prominent the importance of selection of land and seed, with due regard to all other essentials; as one acre will suffice for a test, while 100 acres might be a problem.

Successful production of Alfalfa requires one fast rule: More efficient work to increase the average standard of production and quality, keeping step with progress and business demands, preventing possible discouragement caused by misdirected effort, and removing the production of alfalfa from the experimental stage in the shortest possible time. Such procedure requires engineering ability in the selection of land, knowledge of soils and especially of seeds, and other requirements usually possessed by the average farmer. When the essentials are known and understood, we think, one of the most important matters is the question of climate and its relation to effect on seed.

Mild climate seeds will germinate in a more severe climate but do not stand the necessary after tests. Climatization of seeds is a pronounced necessity. The permanency of an Alfalfa crop is a large element in its value. The severe test of permanency, other conditions being favorable, lies in the winter-resisting power of the plant, made possible by acclimation of seed. Theorists inform us there is no complete remedy against winterkilling, on account of there being no seed yet sufficiently climatized to wholly resist it. We agree with such theory, but the seed that has been longest produced under certain conditions will produce the highest per cent of good results under similar conditions. If seed can be secured in a locality where it is to be seeded and it has been successfully produced in such locality for a period of time, it is the most desirable seed to use, the length of time it has been produced in such locality adding value to it as a seed for such locality.

Standard production and longevity of crop are most desirable, and such combination of requirements might well and does represent a test. It is pleasing to note that progress is being made in both, as a standard production practically assures longevity. I trust you will pardon me if I speak briefly of Alfalfa production in the state where we have made our most careful observations and where the greatest possible amount of progress has been made, and the direct effect on the entire state. Alfalfa is now being produced in South Dakota with equal success on land with a value of $20.00 per acre and land valued at $150.00 per acre. This condition can be duplicated in Wisconsin today.

South Dakota ten years ago produced only a few acres of Alfalfa, and yet in certain sections of the state it has been successfully produced continuously in the same fields for 25 years, insuring profit and longevity of crop. During the season of 1915 there was 199,918 acres engaged in Alfalfa production. This same acreage should have produced twice as many tons as were produced. However, this is a wide range in individual production and a state average. For instance, the State of Illinois, is the largest corn producing state, and while there are individual productions in Illinois of over 100 bushels per acre, the average for the entire state was 36 bushels per acre. In South Dakota we know of nonirrigated land, one field in particular, with Alfalfa 12 years of age that produced a little over 8 tons per acre in the four cuttings in 1915, which was an unusually favorable season for Alfalfa feed, but not for seed.

South Dakota produced 31,000 bushels of Alfalfa seed in 1915, and it is the largest Alfalfa *seed shipping* state in the Union. We know the acreage has more than trebled in five years, will be doubled in 1916, and with additional experience and better methods, will be one of the greatest Alfalfa producing states, with all the attendant productions that will add so materially to its wealth. This condition, so far as possibilities are concerned, is representative of South Dakota, North Dakota, Minnesota, Wyoming, Iowa, Illinois, Michigan, Nebraska, and Wisconsin. It is now a question of rapid progress stimulated by the greatest average success.

In the sale of seed there is wide opportunity for fraud. This, added to much ignorance on the part of some dealers in seed, leads almost direct to failure for the planter. A purchaser in Northern Wisconsin knows he does not want a seed produced too far South and yet he does not have the means of knowing, except on statement of dealer, who, in turn, possibly does not know. The Turkestan Alfalfa comes from a wide range of country and various climatic conditions, and represents as wide a variation as Arizona and Minnesota seeds; so that variety alone does not determine what is equally or more important, the climatic and hardy variety of any kind of seed. The protection is to secure seed from a similar locality, or better, produce your own seed.

Other gentlemen present will address you on technical matter connected with this subject. Our views do not carry other than matter of which there must be but common interest, but such common interest is growing and spreading, as it has opportunity to do and will continue to do, until there will not be a farm in the United States without an Alfalfa crop. That is something which can not be said of any other one farm product. We repeat, it is not only a national but an international production, and statisticians will have a wide field in compilation of material for actual and prospective results.

MUTUAL RELATION OF FARMING AND TRANSPORTATION.

We have in our crude manner outlined the effect of intensive cultivation of a crop that is not only a ready money-maker through agencies that upbuild the business plant or farm employed in operation, makes the farm more valuable, the owner more useful and independent. Our view is that, more than any other farm factor, Alfalfa successfully produced lays the foundation for all other successful farm efforts. A location or district thus established directly concerns and insures due consideration by a transportation company.

Land that is idle for any reason is practically worthless. If profitably employed it is brought into the production class. If it can be made more productive by a crop that in turn supplies direct, and through agencies, fertility that again adds to volume, it will in an accumulative effect produce an excess, and such excess in volume produces transportation. A common carrier is dependent entirely upon volume of traffic, and volume is one of the most important and prominent factors in rate construction. Thus, the prosperity of the farmer adds to the prosperity of the Transportation Company.

Excess volume is the factor that supports transportation. If there is no excess and a reverse condition exists, there is no supply to draw from and the demand becomes lessened by restriction and economy, and thus while supply and demand conditions adjust themselves, the transportation company is deprived of volume and consequently feels the result of depressed conditions most keenly. We think an

excess will create and find a demand, and in many ways stimulate transportation. A decrease or short supply, will, to an extent, adjust itself by economy measures. Thus we differentiate between excess supply and demand in its effect on transportation.

Transportation lines are most prosperous in localities where density of business prevails, both on account of volume and on account of average and regularity of movement. A farming community that is dependent on only certain crops, has, as a rule, a short congested period of transportation movement, with a longer period of forced depression. Such crops as a rule are independent and have little if any effect on other productions, but our particular crop subject is not only the basing factor for intensive production but the supporting factor for other prosperity.

The possibilities of the large uncultivated acreage now designated as cheap lands, coming into the cultivated class with such valuable production per acre in comparison with yields on high class acre farms, is sure to produce a strong support for transportation lines that are not now being supported, and also in many cases where the traffic is being rapidly depleted. It is our view that the stimulus now being accorded the production of Alfalfa is timely from a transportation viewpoint.

The conditions, we think, establish a reasonable mutual relation between a farming community and transportation company, and we know of no factor so essential to prosperity for both, as volume and value. We believe the production subject under discussion the most essential one, in order to maintain such relation purely on business consideration, but business efficiency methods must be injected in farming operations. Theory and practice combined will produce the highest per cent of mutual prosperity, in which both farming and transportation interests will mutually share.

This is not a building-up process alone for future generations, but the present generation will benefit. It will provide safeguards for the future that were not given to us by our forefathers in the same manner. It was not necessary at that time, as our heritage was in the large amount of uncultivated acres which were left us. Our legacy will be a largely increased fertility and productive value, and future genera-

tions and transportation lines will always be mutually interested.

We have, during our past years enjoyed special advantages, having been employed by a transportation company so closely related to agriculture, many of whose officers passed their early life on a farm, with a President fully in sympathy with farm life and whose long railroad experience in Wisconsin especially qualifies him with knowledge of local conditions, which gives us the privilege of being present here today. We have personally for many years been interested, not in speculative farm lands or tenant farming, but in actual farm operation, and for past 14 years have modestly produced alfalfa, with success and satisfaction.

HOW TO GROW ALFALFA

L. F. GRABER, SECRETARY ALFALFA ORDER, Madison, Wis.

Some have tried alfalfa and failed. Many have succeeded and are reaping the benefits of this wonderful crop for live stock farms. As a hay crop it excels all others in yields, feeding value, drought resistance and soil enrichment. Yet it has its drawbacks and it is not always easy to get a good stand. It is a rather particular crop, requiring certain soil conditions and proper treatment. The beginner in alfalfa growing must first of all be a student of alfalfa. He must study the crop and learn its requirements. If he is not willing to pay attention to such important details as inoculation, liming, proper seeding methods, cutting at the proper stage and others to be mentioned, he had better not try to grow alfalfa. Start in a small way with 3 to 5 acres and grow up with the business.

Where to plant alfalfa.

Choose a well drained field having preferably a gentle slope so as to prevent an accumulation of water from melting snow or heavy spring rains.

Poor land should always be well manured. A medium clay loam is best. On heavy clays winterkilling is more apt to occur. Light sandy soils generally require lime and

manure. Alfalfa does well on river bottom lands but peat soils are too sour or acid.

It is best to have alfalfa follow some well cultivated crop like corn, potatoes, tobacco or sugar beets where the soil is freed of weed growth. Never put alfalfa on sod land for the blue grass will cause difficulty. A virgin soil should always be first subdued by growing several cultivated crops to get the soil in good physical condition.

Don't fail to inoculate.

It very often spells success, where otherwise failure would result. It is easy to do and decidedly important. You can't afford to take a chance on trying to grow alfalfa without having the soil properly inoculated.

Spread a ton of soil taken from a successful alfalfa field or from the roadside where sweet clover is growing, on each acre of the land you are to seed to alfalfa. Do this just before sowing the alfalfa seed, and harrow it in. Then you have introduced the proper alfalfa bacteria in the soil which are so essential in securing a healthy, vigorous growing alfalfa crop. And, remember, a field once properly inoculated is always inoculated.

All farmers are advised to mix a quart of alfalfa seed per acre with the timothy and clover seed when seeding down, as this will get a few alfalfa plants established in the field which will become bacteria distributers and thus inoculate the soil for future crops of alfalfa.

A fair inoculation can be obtained by securing some alfalfa soil direct from the Experiment Station or from some good alfalfa field, and then mix equal parts of soil and alfalfa seed by weight. Sow the soil and seed mixture by hand. For limited areas of one or two acres, this method of inoculation is practical.

Shall we lime the land?

Alfalfa will not do well on sour or acid soil. Before growing alfalfa, the soil should be tested with blue litmus paper which can be secured from a druggist. Take a handful of moistened earth from a few inches beneath the surface of the ground and press into a ball. Break this mud ball into halves and place a strip of blue litmus on one of the

halves and cover with the other. After five minutes examine the litmus paper, and if it has changed in color, from blue to a distinct pink or becomes spotted with pink spots, the soil is acid and needs lime for successful alfalfa growing.

On sour soils from two to four tons of air-slaked lime or ground limestone rock or marl or lime refuse should be applied. Whatever form is used it should always be applied to the surface of plowed land and harrowed or disked in. It may be put on in the fall or early spring—prior to seeding the alfalfa. Lime distributors are desirable when large areas are limed but with small acreages it can be conveniently spread with a shovel or a manure spreader.

The best method of seeding.

For the beginner seeding the alfalfa alone gives the best results. The soil is plowed in the fall or early spring and limed if necessary. Then the field is disked and harrowed often enough up to the first of June or July to clean the land of weeds. On average fields this weed killing process need not be continued later than the first week in June, but with a weedy soil it is well to harrow and disk until July or August. The field is then inoculated and the alfalfa seeded at not less than 20 pounds per acre. With a favorable season, one crop or two crops of hay are sometimes secured before Spetember 1, but this is entirely dependent on the rainfall and our soil conditions.

Seeding with a nurse crop.

Especially on fields which have grown alfalfa successfully seeding with a nurse crop gives good results. Fall plow, if the land is not too hilly and washing is apt to occur. If spring plowed, the soil should be rolled after seeding so as to make a compact seed bed which is very essential for the alfalfa. A light harrowing after rolling is necessary to form a loose mulch which prevents rapid drying and evaporation. A light seeding of not over one bushel of barley or oats per acre is highly important. Heavy seedings of the nurse crop are very dangerous and usually crowd the alfalfa so as to stunt its development and a poor stand results. If barley is used as a nurse crop, it

1 2 3 4

Effect of late summer seeding on the vigor and rapidity of growth the following spring.

Date seeded 1914	Length of roots May 12, 1915	Length of stems May 12, 1915
(1) Aug. 4, 1914	20 inches	20 inches
(2) Aug. 25, 1914	13 inches	17 inches
(3) Sept. 15, 1914	10 inches	13 inches
(4) Sept. 26, 1914	8 inches	8 inches

A Wisconsin farm scene made of seeds, mosses and grasses by C. J. Berg, Tigerton. The beautiful picture was shown in the Wisconsin Agricultural Exhibit at the Panama-Pacific Exposition.

may be cut for grain. Oats ripen later and must be cut for hay so as not to check the growth of the alfalfa.

Other methods.

Where a crop of early potatoes has been grown the alfalfa may be seeded after their harvest but not later than August 15. Seeding alfalfa after this date nearly always results in failure as the crop does not get sufficient growth before the first killing frost to withstand the winter. In those sections where canning peas are grown and harvested in June or the first part of July the soil may be disked and harrowed and inoculated immediately the peas are harvested and the alfalfa seeded at the rate of 20 pounds per acre with good results. Seeding alfalfa after a grain crop has been cut is dependent for success on the amount of rainfall. Too often the soil is so dry at this time that it is impossible to work up a good seed bed prior to August 7th.

Where a crop of tobacco or sugar beets has been raised and the land practically freed of weeds the alfalfa may be seeded alone in the early spring and two, sometimes three, good cuttings are secured the first year.

When should alfalfa be cut?

To maintain a good stand of alfalfa nothing is so important as to cut the crop at the proper time. The first cutting will come in the early part of June—a trying time to cure the hay. The proper cutting stage is when the plants have just begun to bloom and the little shoots or sprouts at the crowns have made their appearance and are on the average not over an inch in length. To delay the cutting of alfalfa until the entire field is in blossom is a very poor practice. At this stage the little shoots or sprouts at the base of the stem which produce the second crop will have grown three to five inches in length. In mowing these will be clipped off and the second growth delayed two or three weeks. The third cutting will then not be ready until the middle or latter part of September. If the third crop is harvested at this time the alfalfa seldom secures sufficient growth before cold weather to withstand the winter. Many failures are due to late fall cutting. Alfalfa should never be cut after September 5.

Curing alfalfa hay.

The best hay is made by cocking the alfalfa and covering it with hay caps, which insures protection against rains. The hay is bunched usually on the same day it is cut when in a good wilted condition. By allowing it to cure in this manner for two days, the leaves and stems dry out uniformly, with little loss and you get a bright green hay of the best quality.

When alfalfa hay is harvested on a large scale, or if labor is scarce, hay caps are not always used. After the hay is well wilted, it is raked into long windrows with a side-delivery rake and allowed to cure here for two days. It may be loaded with a drum hay loader or hauled in with sweep rakes. Alfalfa hay will stand more rain than either timothy or clover.

Why alfalfa fails.

During the past three years over one thousand reports on alfalfa growing in Wisconsin have been received by the Alfalfa Order—Wisconsin's Alfalfa Growers' Association. These reports clearly show that the principal causes for failures with alfalfa in Wisconsin are as follows:

1. Failure on part of farmers to inoculate the soil.
2. Attempting to grow alfalfa on sour or acid soils without liming the land.
3. Poor preparation of the seed bed and improper methods of seeding.
4. Weeds—heavy growths of which crowd out the alfalfa.
5. Too thick seeding of the nurse crop. Not over one bushel of grain should be sown with the alfalfa and if oats is used it should be cut for hay.
6. Late seeding. Seeding after August 15 is a dangerous practice. Sufficient growth is often not secured before cold weather sets in so that the alfalfa may stand the winter.
7. Late cutting. Cutting alfalfa after the first week in September has resulted in serious winterkilling of many otherwise good stands of alfalfa. Alfalfa should have at least six to eight inches growth to afford sufficient winter protection.

8. Pasturing. Late and close pasturing are particularly dangerous.

9. Poor soils. Although alfalfa is a great soil enricher it requires at least a medium fertile soil. Poor soils should be well manured.

10. Low, flat, poorly drained soils. Alfalfa requires a well drained field. On flat, heavy clay soils which hold water from melting snows and heavy rains in the early spring alfalfa may be heaved out by alternate freezing and thawing weather. A sloping field which will provide ample run-off for surface water is more desirable.

SOME POINTERS FOR BEGINNERS

L. F. GRABER, SECRETARY ALFALFA ORDER, Madison, Wis.

Start with a small patch—say three to five acres. Study the crop. Write for literature and bulletins on alfalfa, lime, etc. It's the man who will pay attention to such things as liming, inoculation, careful preparation of seed bed, proper seeding methods, etc., who will win out with alfalfa. The fellow who "takes a chance" with any old method is too often disappointed.

It is a good plan to sow alfalfa, where a well cultivated crop such as corn, potatoes, tobacco, sugar beets, etc., has been grown the preceding year. This is one way to get around the weed problem. Don't attempt seeding alfalfa on plowed sod as the blue grass will almost surely get control of the field the first year.

On sour soils apply lime at the rate of from two to four tons per acre to the surface of plowed land and harrow or disc it in. It should never be plowed under.

Remember that where alfalfa can be successfully grown, it excels all other hay crops in yields per acre, feeding value, as a soil enricher, and drought resister.

Remember, that according to reports of several hundred Wisconsin farmers, who are members of the Alfalfa Order, Wisconsin State Alfalfa Growers' Association, one-half of all the failures in growing alfalfa are due to a lack of lime and inoculation. You can grow good corn on sour land, you can grow good grain on sour land, but you can't grow

good alfalfa on sour soil. Lime sweetens the soil, takes the sourness or acid out of soil, and makes conditions most favorable for alfalfa.

It's hard for us to realize that our upland soils are sour—we generally think of marsh soils where sour or wild slough grass grows as the only soils that are acid—but this is not always true—very frequently cultivated upland soils are sour—too sour to grow good alfalfa without lime.

Oftentimes one load of inoculation dirt per acre is worth more than ten loads of manure in establishing a good stand of alfalfa.

START RIGHT WITH ALFALFA

One of the main purposes of the Alfalfa Order is to determine the difficulties, the advantages, and the disadvantages of alfalfa growing in Wisconsin. It is undoubtedly true that alfalfa has its place as an exceedingly important forage crop on many farms, but there are conditions where the advisability of attempting its growth is doubtful. In those sections of the state where clover grows luxuriantly and bounteous yields of this great crop can be easily and cheaply obtained, alfalfa should not be too greatly emphasized, especially if its establishment is difficult, costly, and uncertain.

MUST KNOW ALFALFA TO GROW ALFALFA

The farmer can well afford to take special care and go to reasonable expense in getting a stand of alfalfa, but he must know alfalfa before he can grow it. The beginner should try only a small patch and study the crop in reference to his local conditions. It is one of the particular objects of our association to secure the results of these trials on alfalfa and make this information available to all our members. In this way all alfalfa growers can profit by the experience of others, whether it be success or failure, and a healthy sentiment creating confidence in the possibilities of alfalfa growing in Wisconsin is brought about.

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President—Tostie Thompson, Wautoma,
Vice President—M. O'Connor, Hancock,
Secretary-Treasurer—Supt. E. Coates, Wautoma.

WINNEBAGO COUNTY.

President—A. J. Cross, Allenville,
Vice President—E. Race, Omro,
Secretary-Treasurer—

WOOD COUNTY.

President—A. P. Bean, Vesper, R. F. D. 1,
Vice President—J. F. Schmidt, Arpin, R. F. D. 2,
Secretary-Treasurer—W. W. Clark, Ellsworth.

PROGRESS OF THE MARINETTE COUNTY ORDER.

D. S. BULLOCK, SECRETARY, Marinette

The Marinette County Order has just closed its third year's work and has every reason to be pleased with what has been accomplished. Last spring the members sold about eight hundred (800) bushels of seed corn, shipping it to five different states. As far as I have been able to ascertain, every member sold all of the pure bred grain they offered for sale.

Last fall the Order put on the first County Exhibit ever shown from Marinette County, as a County, at the State Fair.

In connection with our annual meeting on Jan. 8 was held the first Annual Corn and Grain Show. In order to make

this a permanent annual event, seven beautiful sterling silver cups have been obtained to be competed for by the members. To become the permanent possession of any person these trophies must be won three years. These cups were very generously donated by local business firms and loyal citizens.

Plans are already under way for an exhibit at the 1916 State Fair. We are also planning a campaign for the more extensive growing of Soy Beans for seed and also for the introduction of pedigree strains of field peas.

Our membership at present is 262.

CONSTITUTION AND BY-LAWS OF THE COUNTY ORDERS OF THE WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION

ARTICLE I.—*Name.* The organization shall be known as the..... .....County Order of the Wisconsin Agricultural Experiment Association.

ARTICLE II.—*Object.* The object of this organization shall be to promote the agricultural interests of the County and State in general.

1st. By coöperating with the Wisconsin Agricultural Experiment Association in growing and disseminating pure bred seed grains.

2nd. By having Associations' exhibits at agricultural fairs.

3rd. By having annual meetings in order to report and discuss topics beneficial to the members of the Order.

ARTICLE III.—*Membership.* 1. Any person may become a member of this Order who has taken a course in the College of Agriculture at Madison or at any place in the State under the jurisdiction of the College.

2. Any one who is interested in pure bred grains and live stock or in progressive farming in general may become a member of this Order.

3. Honorary membership may be conferred upon anyone interested in progressive agriculture by a majority vote at any annual or special meeting.

ARTICLE IV.—*Dues.* A fee of fifty cents shall be collected from each member annually.

ARTICLE V.—*Officers.* The officers of this Order shall consist of a President, Vice President and Secretary-Treasurer, whose terms of office shall be one year, or until their successors are elected.

ARTICLE VI.—*Duties of Officers.* 1. It shall be the duty of the president to preside at all meetings of the Order and to enforce the observance of such rules and regulations as will be for the best interest of the organization; to appoint all regular committees as he may deem expedient for the welfare of the Order.

2. In the absence of the President, the Vice President shall preside and perform the duties of the President.

3. The Secretary-Treasurer shall keep the records of all meetings and proceedings of the Order, also the names of all members and their addresses. He shall also keep the funds of the Order, collect all fees, pay all debts, and shall submit a written statement of all moneys received and paid out by him and shall balance his books not later than one month before the annual meeting.

ARTICLE VII.—*Disbursements.* The funds of the Order shall be used to defray its expenses or by vote of the Order for such purposes as will

advance the agricultural interests of the Order and shall be paid out only upon an order signed by the President and countersigned by the Secretary.

ARTICLE VIII.—*Amendments.* This constitution may be amended at any meeting, by a two-thirds vote of the members of the Order present.

BY-LAWS

ARTICLE I. The officers of this Order shall be elected by ballot at the annual meeting.

ARTICLE II. This Order shall be governed by Roberts' Rules of Order.

ARTICLE III. All members joining at the organization of this Order shall be known as Charter Members.

ARTICLE IV. The time and place of holding the annual meeting shall be determined by the officers.

Adopted....., 19.....

CONSTITUTION AND BY-LAWS OF THE TOWNSHIP AGRICULTURAL CLUBS OF THE COUNTY ORDERS OF THE EXPERIMENT ASSOCIATION.

ARTICLE I. NAME.

The organization shall be known as the (Name of township) Agricultural Club of the (Name of County Order) of the Experiment Association.

ARTICLE II. Object.

The object of this organization shall be to promote the agricultural interests of the town, county, and state.

1st. By coöperating with the County Order and State Experiment Association in growing and disseminating pure bred seed grains.

2nd. By having town and individual exhibits at County Fairs and other agricultural exhibitions.

3rd. By having at least one annual meeting and several special meetings in order to report and discuss topics beneficial to the members of the club.

4th. The special meetings should be social in character and the program shall consist of debates, discussions, readings, together with vocal and instrumental music.

ARTICLE III. MEMBERSHIP.

1. Any person may become a member of this township club who is especially interested in agriculture.

2. Honorary membership may be conferred upon anyone interested in progressive agriculture by a majority vote at any annual or special meeting.

ARTICLE IV. DUES.

A fee of twenty-five cents shall be collected from each member annually.

ARTICLE V. OFFICERS.

Tne officers of this organization shall consist of a president, vice president, and secretary-treasurer, whose term of office shall be one year, or until their successors are elected.

ARTICLE VI. DUTIES OF OFFICERS.

1. It shall be the duty of the president to preside at all meetings of the club, and to enforce the observation of such rules and regulations as will be for the best interest of the organization, to appoint all regular committees as he may deem expedient for the welfare of the Association.
2. In the absence of the president the vice president shall preside and perform the duties of the president.
3. The secretary-treasurer shall keep the records of all meetings and proceedings of the club, also the names of all members and their addresses. He shall also keep the funds of the club, collect all fees, pay all debts, and shall submit a written statement of all moneys received and paid out by him and shall balance his books not later than one month before the annual meeting.

ARTICLE VII. DISBURSEMENTS.

The funds of the club shall be used to defray its expenses or by vote of the club for such purposes as will advance the agricultural interests of the organization and shall be paid out only upon an order signed by the president and countersigned by the secretary.

ARTICLE VIII. AMENDMENTS.

This constitution may be amended at any meeting by a two-thirds vote of the members of the club present.

BY-LAWS.

ARTICLE I.

The officers of this club shall be elected by ballot at the annual meeting.

ARTICLE II.

This club shall be governed by Roberts' Rules of Order. The secretary shall report the organization of the club with names and addresses of officers to the secretary of the county order and the secretary of the state association immediately after organization and all changes annually in officers thereafter.

BUSINESS MEETING

Saturday, 8:30 A. M., Auditorium, Agricultural Hall.

Meeting called to order by President Michels. The minutes of the last meeting were read and approved, after which the following named officers were elected.

President, Henry Michels, Malone
Vice President, J. R. Thorpe, Tavera
Secretary, R. A. Moore, Madison
Assistant to Secy., J. J. Garland, Madison
Treasurer, H. E. Krueger, Beaver Dam

On motion, Mrs. A. F. Howie, Milwaukee, and A. C. Johnson, Chicago, were unanimously elected honorary members of the Association.

REPORTS OF COMMITTEES

Executive Committee—

Meeting held Thursday evening February 10, 1916.

Meeting was called to order by George W. Davies, chairman and the chair appointed J. J. Garland Secretary.

Present—Prof. R. A. Moore	Henry Michels
J. R. Thorpe	J. A. Van Natta
H. E. Krueger	Frank Bell
G. W. Davies	J. J. Garland

Prof. Moore in reviewing the work of the Association for the past year spoke of the splendid exhibit placed at the San Francisco Exposition, the continuance of the experimental work already started and of a plan for coöperation between the State Board of Agriculture and the Association in the exhibiting of Wisconsin Pure Bred Grains.

Discussion on the giving back of entries at future grain shows: Motion made and carried that policy of the Association in returning grains from future shows be left to the discretion of the officers.

Discussion on establishment of districts or divisions of the state for the exhibiting of corn at Association Grain Show: Moved and carried that two districts, a north and south, be made for next year's grain show.

Discussion on exhibiting privilege at Grain Show: Moved and carried that entry fee be left as it was to exhibitors not members of the Association.

Discussion as to when next year's meeting and grain show be held: Moved and carried that this matter be left to discretion of association officers.

Experimental work of the past year discussed and in view of unfavorable season it was decided to continue same lines of work. Moved and carried that Secretary be authorized to expend not over $100.00 on experiments with acid phosphate.

Moved and carried that secretary be authorized to expend not to exceed $150.00 for experimental work on sweet clover.

Moved and carried that secretary be authorized to expend not to exceed $50.00 on soy beans.

Discussion on the association coöperating with the Agricultural College in running a special Seed Grain Train next year. No action taken.

Discussion of a plan for advertising of seed grains by members having seed for sale. No action taken but discussion favored letting the members having large amounts of grain combine in buying advertising space in a manner similar to that of live stock breeders.

Moved to adjourn.

GEO. W. DAVIES,
Chairman.
J. J. GARLAND,
Secretary.

Moved and carried that report be accepted.

Committee on Resolutions—

The following resolutions were read by the chairman, Mr. Cheesman, and unanimously adopted:

RESOLUTIONS

This association in annual meeting assembled records its deep obligation, and sincere thanks to Mrs. Adda F. Howie for her faithful aid and cheerful service in caring for the agricultural exhibit at the Panama Exposition. For more than two months, when no other provision had been made her loyalty to the State of Wisconsin made this valuable display vital by her presence and enabled many an inquirer to obtain information concerning the state; and the inspiration reflected by generous and enthusiastic service.

The agriculturists of Wisconsin express their great sense of loss in the death of our fellow worker, Mr. A. P. Grout, and assure his family of their high appreciation of his worth as a citizen of Illinois and as one of its most untiring workers. We take inspiration from his example and shall remember his consistent, and loyal service as the highest expression of good citizenship.

This association records its sorrow in the parting of our friend and associate, Joseph E. Wing. We desire to convey to his family our warm appreciation of his services in his chosen field of labor. His simplicity of faith, and childlike trust in his fellow men, and the hearty good fellowship which always marked his intercourse with all who met him will forever endear the name he bore to all who remember his cheery smile and encouragement in all good work.

TREASURER'S REPORT

Mr. H. E. Krueger, Treasurer, reported on the financial condition of the association as follows:

Balance in Association Treasury Dec. 18, 1914	$676.63
Received from fees, premium donations, etc	921.60
Total Receipts	$1,598.23
Total Disbursements Dec. 18, 1914 to Feb. 1, 1916	1,300.87
Balance in Association Treasury Feb. 1, 1916	$297.36

R. A. Moore, Secretary, reported on the use and condition of state funds. His report showed a

Balance in State Treasury Jan. 1, 1915	$3,509.37
State Appropriation July 1, 1915	5,000.00
Inspection Fees	367.00
Total Receipts	$8,876.37
Total Disbursements Jan. 1, 1915 to Feb. 1, 1916	$5,287.62
Balance in State Treasury Feb. 1, 1916	$3,588.75

The itemized financial reports are on file for inspection in the office of the Association.

HIGHEST YIELDING CORN CONTEST

One of the interesting features of our recent grain show was the display of ears of corn entered by members in this contest. Half of the ear had been shelled and planted on the University Farm last summer while the remaining half was kept for the show. On the farm each ear was planted in a single row, all under the same conditions as near as possible. At harvest time, the yields were carefully weighed and figured on the acre basis.

Altogether about 40 ears were received of the Wis. No. 12 or Golden Glow variety and the yields of the highest 10 are as follows:

Place	Row in field	Yield in lbs.	Grower
1	21	46.5	H. Block, Burlington
2	27	44.5	A. Popp, Jefferson
3	23	40.5	J. Van Loon, La Crosse
4	10	39.5	E. Haman, Monroe
5	24	38.7	W. E. Bishop, Arcadia
6	6	37.5	N. Raessler, Beloit
7	7	37.	J. Wielinga, Midway
8	29	36.8	A. C. Ellickson, Arlington
9	5	36.5	L. M. Hanson, Eleva
10	12	36.	J. R. Thorpe, Tavera

The first 10 ears gave an average yield of 58 bushels per acre. The lowest 10 ears average 37 bushels per acre. Over 20 bushels difference.

It is surprising to note that out of the 40 ears entered the first 10 places went to members of the Association who are prominent growers and sellers of pure bred corn. While it is generally recognized that one ear may yield considerably more than another even when produced by the same grower, yet this last year's contest seems to prove that our members who practice careful selection for the improvement of their corn have been able to increase the productiveness of the individual ear.

Although careful measurements and weights of all the characteristic points of the ear were recorded, no noticeable difference could be seen between the high and low yielding ears.

This coming season a contest will be run with both silver king and golden glow varieties and suitable prizes again offered to the members entering the highest yielding ear of corn.

WISCONSIN'S AGRICULTURAL EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION

L. F. GRABER, Madison

As a result of the coöperation of the Wisconsin Exposition Commission, the Experiment Association and the Agronomy Department of the Agricultural College, Wisconsin's agricultural interests were well represented at the Panama-Pacific International Exposition with an artistic and educational exhibit of the agricultural products and resources of the state. The Exposition Commission at first appropriated $2000 for a Pure Bred Grain exhibition. Later on it was evident that this sum would not suffice to meet the expense and maintenance of an exhibit which would be in keeping with the prominence of Wisconsin's agricultural industries, and the Commission contributed generously from their meager appropriation by increasing this fund from $2000 to $4300. This increase made possible the installation and maintenance of an exhibit which was truly representative of Wisconsin's agricultural progress and supremacy.

MRS. ADDA F. HOWIE IN CHARGE

While at first only pure bred grains and forage crops were to be represented it became necessary that the great dairy industry of our state receive due recognition in the exhibit. An immense dairy scene 106 feet long and 19 feet high, indicative of our prëeminence as the leading dairy state was appropriately added to the display. By far of more importance, however, in the way of portraying the dairy progress of Wisconsin, were the invaluable services of Mrs. Adda F. Howie of Elm Grove, Wisconsin. The exhibit was placed under her personal supervision and direction throughout the entire period of the Exposition

from February to December. No one could have been more eminently fitted for this important position as a true representative of the Badger farmers at the great Exposition than Mrs. Howie. She not only owns the largest and one of the finest herds of pedigreed Jersey cattle in Wisconsin, but her unusual success as a practical farmer has given her a national reputation as the greatest woman authority on dairying in America. For a number of years she was honored as a member of the State Board of Agriculture, and for a much longer period she served on the Farmers Institute staffs of Wisconsin, New York, South Dakota and other states. She was the first to recognize and advocate the importance of tender care and gentleness in rearing well bred dairy stock, and her lectures promulgating these principles, have won her a prominent and permanent rank before the dairy world as the leading farm woman in America.

Her remarkable and pleasing personality and highly interesting and instructive lectures on dairying and crops, given in connection with the exhibit, made it one of the most popular in the Palace of Agriculture. Farmers from all parts of the United States and Canada came to the exhibit for her information regarding dairying and agricultural opportunities in Wisconsin. They were given reliable instruction and a cordial welcome was extended. No other exhibit was so well cared for throughout the entire period of the Exposition. It was kept alive, neat and attractive seven days out of every week, all due to Mrs. Howie's persevering and tactful management. She made the exhibit a decided success, and Wisconsin can well feel proud that her agricultural display was in charge of such an eminent authority and one of such wide reputation.

THE EXHIBIT

A well located section 106 feet long, 30 feet in depth with a wall space 34 feet high provided ample room in the Palace of Agriculture for the display. Wisconsin was fortunate in having her agricultural exhibit with the other state displays in this immense palace rather than in the state building which would not have permitted nearly such an extensive exhibit.

Entering the Palace of Agriculture and proceeding along almost any aisle one could see the immense sign, "Wisconsin, the Leading Dairy State," calling attention to the state's leading industry. Directly below was an enormous artistic painting, 106 feet long and fifteen feet high, showing in the center a beautiful dairy scene representing typical animals of our leading dairy breeds grazing in a Wisconsin pasture. On one end a representation of an immense cheese about fourteen feet in diameter and six feet high was so divided into three parts as to show graphically who makes the nation's cheese. Wisconsin produces 47 per cent, New York 34 per cent, and other states 19 per cent of the United States supply, according to the 1909 census Report of the U. S. Government. Beneath this one could read that one-half the cheese factories in the United States were located in Wisconsin. On the opposite end was an artistic painting of three tubs of butter, the sizes of which showed graphically the production of butter for the three principal states, Wisconsin (131,000,000 pounds), Iowa (127,000,000 pounds), and New York (69,000,000 pounds). That Wisconsin has more dairy cows than any other state was a fact also characterized in an attractive manner.

Under this large sign Wisconsin crops were featured on a wall space 106 feet long and fifteen feet high, artistically divided into appropriate sections for Wisconsin pure-bred corn, wheat, oats, barley, rye, grasses, clovers, the Experiment Association and College of Agriculture. The central section presented the key-note of the exhibit, "Our System of Agriculture, Diversified Crops and Live Stock Farming." In this section was shown why Wisconsin avoids the dangerous one-crop system of farming and how our agriculture is on a permanent and lasting basis for all time to come. Artistically arranged charts and colored photographs of rural scenes illustrating the agricultural practices in Wisconsin which have led to our rapid agricultural development in the past few years were included in this section.

On either side of this central display the wall space was divided into sections to represent separately the various crops such as the Pure Bred Barley, Oats, Rye, Wheat and Corn and Wisconsin Grasses and Clovers. Each of these sections was appropriately decorated with beautiful sheafs and finest specimens of the crops mentioned, with a central

chart giving the production and average yields per acre as compared to neighboring states. In the College of Agriculture section the College was graphically represented as the connecting link between bigger and better crops in Wisconsin and more and better live stock. The Babcock test was shown as Wisconsin's greatest contribution to the dairy industry. Statistics regarding the attendance of the College were given in connection with the three main lines of work of the institution—instruction, experimentation and extension.

WISCONSIN PURE BRED GRAINS

That Wisconsin stands to-day as the leading pure bred seed producing state in the Union was portrayed in the Wisconsin Agricultural Experiment Association section. This Association is composed of 1600 Wisconsin growers of improved pure bred and pedigreed grains. The organization has now been in existence for fourteen years and its members were the contributors of the products which helped make the exhibit such a decided success. The improved grains and seeds bred up by the Experiment Station are disseminated throughout the state in their hands for tests as to yields and quality and further dissemination and growth. The pure bred grain industry of Wisconsin has assumed wide importance. As a result of the numerous winnings at grain shows of national importance a wide reputation and demand for Wisconsin Pedigree Barley, Oats, Corn, Rye and other seeds has sprung up throughout the country. Large shipments have been made to Montana, Minnesota, California and foreign countries by farmers themselves. In numerous state wide tests these pure bred grains have outyielded the common sorts by 5 to 10 bushels per acre. The Association has an annual grain show at Madison, one of the leading of its kind in the world. All these facts are graphically displayed with attractive charts and photographs. The exhibit gave the pure bred seed industry wide publicity and advertisement and opened up a greater market for our high class Wisconsin grown products.

A large relief map of Wisconsin, loaned by the State Immigration Department was of great value in demonstrating Wisconsin's ideal location near the world's greatest

markets for farm products. With Duluth and Superior to the north and their excellent harbor facilities for lake traffic, Minneapolis and St. Paul to the west and Milwaukee and Chicago and Lake Michigan on the east, Wisconsin farmers are surrounded by the best possible markets for their farm products.

WISCONSIN CORN

Wisconsin's rapid rise as a corn-producing state was shown by the results of the introduction of the pure bred varieties, such as Silver King, Golden Glow, etc., which have rapidly replaced the scrub corns and late maturing varieties which were not adapted. Fortunately Wisconsin crops are not sold off the farm but are fed on the land, and particularly is this true with the corn crop. Wisconsin has more silos (56,000) than any other state in the Union, and over 40 per cent of our corn is harvested for silage purposes. Such important factors as these were emphasized throughout the exhibit in an attractive manner but in such a way that the facts rather than the decorations stood out as the really important features.

One of the attractions of the exhibit was a miniature farm constructed by C. J. Berg, a farmer of Tigerton, Shawano county. It is a replica of his farm made entirely of mosses, grasses and seeds grown on his farm. The accuracy of detail proclaimed the maker a true artist. It was fourteen feet long and seven feet high, and proved to be a great attraction. Thousands of people admired this scene and declared it in every detail a work of art.

WISCONSIN FACTS

Among other striking facts regarding Wisconsin's agriculture which were emphasized in the exhibit are the following:

1. "Wisconsin is a live stock state. Live stock farming enhances soil fertility, the basis of permanent agriculture."
2. "Wisconsin is not a renting state. Over 85% of our farms are operated by the owners."
3. "Wisconsin is a state of rural population. Over 50% of our people live on farms or in small villages."
4. "Wisconsin is the leading pure bred seed state of the Union."

5. "Wisconsin pedigree barley and rye have never been beaten for world championship honors in seven National Grain Shows."
6. "Wisconsin produces 43% of the canned pea supply of the United States."
7. "Wisconsin ranks first in the production of rye; second in the production of potatoes, and fourth in the production of hay."
8. "Upper Wisconsin offers excellent opportunities to the homeseeker. Thousands of acres of cheap fertile lands are now being cleared and rapidly developed into productive farms."

WISCONSIN WINS MANY MEDALS

Over 400 samples of pure bred grains, corn and forage crops grown in every county in the state were exhibited for awards of merit. Nothing but the very finest prize winning samples of the Wisconsin Agricultural Experiment Association state grain show held last December were placed on display. Their outstanding quality and the fact that they were portrayed in open boxes where they could be conveniently handled and examined instead of being bottled up as was the case with many other exhibits proved a great drawing card for those visitors who were particularly interested in agriculture. A total of 72 medals were awarded on Wisconsin products, including twelve of gold, 41 of silver and 19 bronze medals and one honorary mention. A detail list of the winnings as reported to date are as follows:

WISCONSIN STATE AWARDS AT THE PANAMA PACIFIC INTERNATIONAL EXPOSITION, SAN FRANCISCO, CALIFORNIA.

Gold Medals were awarded on:

Agricultural Exhibit—Wisconsin Agricultural Experiment Association, Madison, Wisconsin.

Corn	J. E. Brunker	Ridgeway, Wis.
Corn	J. R. Thorpe	Tavera, Wis.
Corn	H. C. Brueckner	Jefferson, Wis.
Corn	C. S. Ristow	Black River Falls, Wis.
Corn	A. A. Austin	Janesville, Wis.
Alfalfa	Swartz Bros.	Cornfalfa Farms, Waukesha, Wis.
Tobacco Exhibit	W. I. Pomeroy Co.	Edgerton, Wis.
Tobacco Exhibit	Theo. Oberson	Westby, Wis.
Wheat	Hieron Block	Burlington, Wis.
Cranberries	Wisconsin Sales Co	Grand Rapids, Wis.
Barley	Wis. Experiment Assn	Madison, Wis.

Silver Medals were awarded on:

Corn	R. T. Bohl	Beaver Dam, Wis.
Corn	E. E. Clingman	Reedsburg, Wis.
Corn	Jno. Dettwiler	Monroe, Wis.
Corn	O. A. Haney	Lone Rock, Wis.

Corn	O. J. Hecketsweiler	Alma Center, Wis.
Corn	H. S. Hintz	Oakfield, Wis.
Corn	Chas. H. Howitt	Randolph, Wis.
Corn	A. C. Ellickson	Arlington, Wis.
Corn	Joe Haus	Jefferson, Wis.
Corn	George H. Leonard	Jefferson, Wis.
Corn	Wm. Leonard	Jefferson, Wis.
Corn	Frank Joos	Alma Center, Wis.
Corn	Arthur Popp	Jefferson, Wis.
Corn	Robert Rodwell	Baraboo, Wis.
Corn	C. S. Ristow	Black River Falls, Wis.
Corn	E. B. Thorpe	Monroe, Wis.
Corn	J. Van Loon	La Crosse, Wis.
Corn	Jippa Wielinga	Midway, Wis.
Oats	Peter Dengel	La Crosse, Wis.
Oats	Alfred Kline	Lomira, Wis.
Oats	Noyes Raessler	Beloit, Wis.
Rye	Lloyd Hubbard	Evansville, Wis.
Rye	M. R. Zachar	Racine, Wis.
Rye	Lewis Groth	Cedarburg, Wis.
Wheat	J. L. Krause	Beaver Dam, Wis.
Wheat	Theo. Ward	Ft. Atkinson, Wis.
Soy beans (2)	Robert Ward	Ft. Atkinson, Wis.
Soy beans (2)	Theo. Ward	Ft. Atkinson, Wis.
Soy beans	M. C. Gorsege	Haven, Wis.
Field beans	Peter Kneeland	Windsor, Wis.
Ginseng	J. H. Koehler	Wausau, Wis.
Clover (2)	Arthur Ochsner	Plain, Wis.
Clover Hay	F. J. Lindley	Fox Lake, Wis.
Clover Hay	Stanley Sebion	Westby, Wis.
Alsike clover seed	Schmidt Bros.	Foxboro, Wis.
Alfalfa	P. A. Paulson	Hudson, Wis.
Extension Charts	L. F. Graber	Madison, Wis. Wis. College of Agriculture.
Statistical Charts	L. F. Graber	Madison, Wis. Wis. Agri. Exp. Ass'n.

Bronze Medals were awarded on:

Corn	E. L. Benedict	Beloit, Wis.
Corn	R. E. Freehoff	Coon Valley, Wis.
Corn	Fred Grebe	Fox Lake, Wis.
Corn	Chas. Getchman	North Freedom, Wis.
Corn	A. N. Kelley	Mineral Point, Wis.
Corn	Wm. Schwandt	Deer Park, Wis.
Corn (2)	Wm. Wichern	Baraboo, Wis.
Timothy	L. Hanson	Eleva, Wis.
Alsike Clover Seed	P. A. Hemmey	Humbird, Wis.
Red Clover	J. W. Jung	Randolph, Wis.
Red Clover Hay	Walter Steinhoff	Platteville, Wis.
Rye	W. C. Katel	Kewaunee, Wis.
Seeds	Wm. Leonard	Jefferson, Wis.
Seeds	L. Teweles & Company	Milwaukee, Wis.
Oats	Wm. Moos	Onalaska, Wis.
Oats	E. C. Pommerening	Oshkosh, Wis.
Oats	A. G. Russell	Janesville, Wis.
Barley	Herman Schoeneck	Enterprise, Wis.

Honorable Mention.

Clover	Jas. Koltes	Dane, Wis.

The exhibit was installed and arranged by L. F. Graber of the Agronomy Department of the College of Agriculture. It was planned entirely on an educational basis and an economic expenditure of funds was made along these lines rather than for expensive decorative designs which were the main attraction of so many of the other displays. In the way of advertising and disseminating information regarding our state the exhibit filled its mission. The thousands of visitors who were interested in agriculture received as a result of the exhibit a clear vision of Wisconsin's great agricultural advancement.

PREMIUM AWARDS.

At Annual Pure Bred Grain Show

Feb. 7–12, 1916

COLLEGE OF AGRICULTURE, MADISON, WIS.

10 EARS SILVER KING (WISCONSIN No. 7) CORN.
First Hieron Block, Burlington
Second J. A. Brunker, Ridgeway
Third W. J. Steinhoff, Platteville
Fourth Otto Wolf, La Crosse
Fifth Jos. T. Hans, Jefferson

10 EARS EARLY YELLOW DENT (WISCONSIN No. 8) CORN.
First Alf. Austin, Janesville
Second H. E. Krueger, Beaver Dam
Third Chas. Hull, Tigerton

10 EARS GOLDEN GLOW (WISCONSIN No. 12) CORN.
First Hieron Block, Burlington
Second S. S. Foster, New Richmond
Third Jippa Wielinga, Midway
Fourth J. E. Brunker, Ridgeway
Fifth Arthur Popp, Jefferson

10 EARS CLARK'S YELLOW DENT (WISCONSIN No. 1) CORN.
First Frank Cairns, Mazomanie
Second J. W. Jung, Randolph
Third Jos. T. Hans, Jefferson
Fourth H. E. Krueger, Beaver Dam

10 EARS NORTH STAR YELLOW DENT (WISCONSIN No. 11) CORN
First Noyes Raessler, Beloit
Second H. E. Krueger, Beaver Dam

10 EARS MURDOCK (WISCONSIN No. 13) CORN.
First H. C. Brueckner, Jefferson
Second Justus Brueckner, Jefferson
Third Chas. Austin, Milton
Fourth Fred Stubley, Black Earth
Fifth Arthur Popp, Jefferson

WISCONSIN No. 25 CORN.
First F. E. Tueke, Crivitz
Second C. A. Correll, Crivitz

10 EARS 8 ROWED RED, YELLOW OR SMUT NOSE FLINT.
First H. T. Draheim, Gotham
Second Lauren Hustin, Eagle
Third Arthur Popp, Jefferson
Fourth H. E. Krueger, Beaver Dam
Fifth J. W. Jung, Randolph

10 EARS 8 ROWED WHITE FLINT.
First Chas. T. Leonard, Jefferson
Second Anton Bohl, Beaver Dam
Third H. E. Krueger, Beaver Dam
Fourth Arthur Popp, Jefferson
Fifth H. T. Draheim, Gotham

10 EARS POP CORN.
First J. F. Staples, Onalaska
Second C. H. Howitt, Randolph
Third Jos. T. Hans, Jefferson
Fourth H. T. Draheim, Gotham
Fifth Arthur Popp, Jefferson

SINGLE EAR DENT CORN.
First H. T. Draheim, Gotham
Second Jippa Wielinga, Midway
Third Otto Wolf, La Crosse
Fourth T. S. Ward, Ft. Atkinson
Fifth J. A. Brunker, Ridgeway

50 EARS SILVER KING CORN (WISCONSIN NO. 7).
First S. P. Markle, La Crosse
Second Anton Bohl, Beaver Dam
Third Otto Wolf, La Crosse
Fourth Hieron Block, Burlington
Fifth Noyes Raessler, Beloit

50 EARS ANY WISCONSIN STANDARD YELLOW DENT CORN.
First Jippa Wielinga, Midway
Second H. C. Brueckner, Jefferson
Third John Van Loon, La Crosse
Fourth Hieron Block, Burlington
Fifth Noyes Raessler, Beloit

PECK WISCONSIN PEDIGREE OR ODERBRUCKER BARLEY.
First Wm. Moos, Onalaska
Second Otto Wolf, La Crosse
Third Jos. T. Hans, Jefferson
Fourth John Schwartz, Antigo
Fifth Alfred Klein, Lomira

PECK TWO ROW BARLEY.
First Anton Bohl, Beaver Dam
Second H. E. Krueger, Beaver Dam
Third H. T. Draheim, Gotham

PECK WISCONSIN PEDIGREE NO. 1 OATS.
First H. W. Whitehead, Rockland
Second Lewis M. Hanson, Eleva
Third P. J. Marmes, Antigo
Fourth Adolph H. Thompson
Fifth Roy E. Leemon, Waupun

PECK PEDIGREE NO. 5 OATS, OR SWEDISH SELECT OATS (WISCONSIN NO. 4).
First Wm. Moos, Onalaska.
Second H. W. Whitehead, Rockland
Third H. E. Krueger, Beaver Dam
Fourth Erick Mickelson, Pembine
Fifth J. L. Krause, Beaver Dam

PECK SIXTY DAY OR KHERSON OATS.
First H. E. Krueger, Beaver Dam
Second H. T. Draheim, Gotham
Third Alfred Klein, Lomira
Fourth G. R. Walch & Son, Antigo
Fifth Clarence Rhodes, Kansasville

PECK ANY OTHER VARIETY OF OATS.
First H. E. Krueger, Beaver Dam
Second De Witt Damp, Dane
Third L. Leslie, Antigo
Fourth Wm. Neuberger, Reeseville
Fifth Ed Peters, La Crosse

PECK WINTER WHEAT.
First Noyes Raessler, Beloit
Second J. J. Ihrig, Oshkosh
Third G. W. Kuhlman, Lowell
Fourth A. A. Goetsch, Juneau
Fifth Carl J. Piek, Chilton

PECK SPRING WHEAT.
First Jos. Schelb, Stratford
Second Art Blumenstein, Woodruff
Third Arthur Popp, Jefferson
Fourth Martin Haevers, Luxembourg
Fifth Herb. Chelstrom, Turtle Lake

PECK WISCONSIN PEDIGREE WINTER RYE.
First Ed Whitemore, Wausau
Second John Schwartz, Antigo
Third Morgan Grandy, Wausaukee
Fourth J. G. Kading, Reeseville
Fifth H. R. Zimmermann, Wausau

PECK MEDIUM RED CLOVER SEED.
First J. L. Krause, Beaver Dam
Second Hieron Block, Burlington
Third A. F. Jacobs, Coloma
Fourth Robert J. Plenty, Rice Lake
Fifth Stanley Sebion, Westby

PECK MAMMOTH RED CLOVER SEED.
First P. S. Graham, Fennimore
Second J. W. Jung, Randolph
Third J. L. Krause, Beaver Dam
Fourth H. E. Krueger, Beaver Dam
Fifth Peter Kneeland, Windsor

PECK ALSIKE CLOVER SEED.
First Schmidt Bros., Foxboro
Second H. E. Krueger, Beaver Dam
Third J. L. Krause, Beaver Dam
Fourth Lauren Hustin, Eagle

PECK TIMOTHY SEED.
First A. N. Kelly, Mineral Point
Second Lewis M. Hanson, Eleva
Third H. E. Krueger, Beaver Dam
Fourth Emil Dregar, Madison
Fifth J. W. Jung, Randolph

PECK ALFALFA SEED.
First H. E. Krueger, Beaver Dam

PECK SILVER HULL BUCKWHEAT.
First H. E. Krueger, Beaver Dam
Second Arthur Popp, Jefferson
Third Cook Bros., Burlington
Fourth Anton Bohl, Beaver Dam

PECK JAPANESE BUCKWHEAT.
First J. L. Krause, Beaver Dam
Second H. T. Draheim, Gotham
Third Anton Bohl, Beaver Dam
Fourth H. E. Krueger, Beaver Dam

PECK BLACK SOY BEANS.
First A. F. Jacobs, Coloma
Second J. A. Hass, Ellison Bay
Third Max Schlies, Peshtigo
Fourth Elmer Kopp, Eau Claire

PECK GREEN SOY BEANS.
First H. E. Krueger, Beaver Dam

PECK YELLOW SOY BEANS.
First H. E. Krueger, Beaver Dam
Second Arthur Popp, Jefferson

PECK YELLOW FIELD PEAS.
First H. E. Krueger, Beaver Dam
Second Arthur Popp, Jefferson

PECK GREEN FIELD PEAS.
First Martin Haever, Luxembourg
Second H. E. Krueger, Beaver Dam
Third Arthur Popp, Jefferson

PECK SMOOTH PEAS.
First H. E. Krueger, Beaver Dam

PECK WRINKLED PEAS.
First H. E. Krueger, Beaver Dam
Second Arthur Popp, Jefferson
Third J. W. Jung, Randolph

PECK NAVY BEANS.
First H. E. Krueger, Beaver Dam

PECK KIDNEY BEANS.
First Arthur Popp, Jefferson

SHEAF PEDIGREE OR ODERBRUCKER BARLEY.
First H. T. Draheim, Gotham
Second Ed Peters, La Crosse
Third Otto Wolf, La Crosse
Fourth Wm. Moos, Onalaska
Fifth Adolph H. Thompson, Black River Falls

SHEAF TWO ROW BARLEY.
First H. T. Draheim, Gotham
Second Arthur Popp, Jefferson
Third Robert W. Ward, Ft. Atkinson
Fourth H. E. Krueger, Beaver Dam

SHEAF PEDIGREE OR SWEDISH SELECT OATS.

First	Brown Bros., Rhinelander
Second	C. H. Howitt, Randolph
Third	Ed Peters, La Crosse
Fourth	Otto Wolf, La Crosse
Fifth	Walter J. Steinhoff, Platteville

SHEAF WINTER WHEAT.

First	Noyes Raessler, Beloit
Second	Arthur Popp, Jefferson
Third	Stanley Sebion, Westby
Fourth	Wm. Moos, Onalaska

SHEAF SPRING WHEAT.

First	Ed Peters, La Crosse
Second	Arthur Popp, Jefferson
Third	J. L. Krause, Beaver Dam
Fourth	H. T. Draheim, Gotham

SHEAF PEDIGREE RYE.

First	Ed Peters, La Crosse
Second	Adolph H. Thompson, Black River Falls
Third	Noyes Raessler, Beloit
Fourth	Arthur Popp, Jefferson
Fifth	John Schwartz, Antigo

BUNDLE OF ALFALFA.

First	John F. Hesprich, Lomira
Second	P. A. Paulson, Hudson
Third	Walter J. Steinhoff, Platteville
Fourth	Lewis M. Hanson, Eleva
Fifth	Stanley Sebion, Westby

BUNDLE OF RED CLOVER.

First	Walter J. Steinhoff, Platteville
Second	H. T. Draheim, Gotham
Third	A. H. Thompson, Black River Falls
Fourth	Stanley Sebion, Westby
Fifth	Wm. Clemens, Kansasville

BUNDLE OF ALSIKE CLOVER.

First	H. T. Draheim, Gotham
Second	Arthur Popp, Jefferson
Third	H. E. Krueger, Beaver Dam
Fourth	Walter J. Steinhoff, Platteville

BUNDLE OF TIMOTHY.

First	Herman Schoeneck, Enterprise
Second	Schwartz Bros., Waukesha
Third	H. E. Krueger, Beaver Dam
Fourth	C. H. Howitt, Randolph
Fifth	Arthur Popp, Jefferson

BUNDLE OF SUDAN GRASS.

First	H. E. Krueger, Beaver Dam
Second	John Van Loon, La Crosse
Third	Edwin Young, La Crosse
Fourth	Fred P. Grebe, Fox Lake

BUNDLE BLUE GRASS.
First H. T. Draheim, Gotham
Second Robert W. Ward, Ft. Atkinson
Third Theo. S. Ward, Ft. Atkinson
Fourth A. N. Kelly, Mineral Point

BUNDLE SOY BEANS.
First Ellis Wynn Roberts, Wild Rose
Second H. E. Krueger, Beaver Dam
Third Robert W. Ward, Ft. Atkinson
Fourth Theo. S. Ward, Ft. Atkinson

HONORARY CLASSES

10 EARS WISCONSIN NO. 1 CLARK'S YELLOW DENT.

10 EARS SILVER KING (WISCONSIN NO. 7) CORN.
First S. P. Markle, La Crosse
Second Noyes Raessler, Beloit

10 EARS WISCONSIN NO. 8 EARLY DENT CORN.
First Noyes Raessler, Beloit

10 EARS WISCONSIN NO. 12 GOLDEN GLOW CORN.
First Noyes Raessler, Beloit
Second John Van Loon, La Crosse
Third C. H. Howitt, Randolph

10 EARS ANY VARIETY 8 ROWED FLINT CORN.
First Geo. H. Leonard, Jefferson
Second Wm. R. Leonard, Jefferson

PECK PEDIGREE BARLEY
First H. E. Krueger, Beaver Dam
Second C. H. Howitt, Randolph

PECK PEDIGREE NO. 1 OATS
First H. T. Draheim, Gotham
Second C. H. Howitt, Randolph
Third H. E. Krueger, Beaver Dam
Fourth Fred P. Grebe, Fox Lake
Fifth Alfred Klein, Lomira

PECK PEDIGREE NO. 5 OATS OR SWEDISH SELECT OATS.
First H. T. Draheim, Gotham
Second J. G. Johnson, Blair

PECK WINTER WHEAT.
First H. E. Krueger, Beaver Dam

PECK SPRING WHEAT.
First H. E. Krueger, Beaver Dam

PECK PEDIGREE RYE
First Noyes Raessler, Beloit
Second H. E. Krueger, Beaver Dam

SWEEPSTAKES CLASS

BEST 10 EARS SILVER KING CORN OF ENTIRE SHOW.
First S. P. Markle, La Crosse

BEST 10 EARS YELLOW DENT CORN OF ENTIRE SHOW.
First Noyes Raessler, Beloit

BEST PECK WISCONSIN PEDIGREE BARLEY.
First Wm. Moos, Onalaska

BEST PECK WISCONSIN PEDIGREE NO. 1 OATS
First H. W. Whitehead, Rockland

BEST PECK WISCONSIN PEDIGREE NO. 5 OATS.
First H. T. Draheim, Gotham

BEST 50 EARS SILVER KING CORN.
First S. P. Markle, La Crosse

MEMBERSHIP LIST, 1916

HONORARY MEMBERS

Ames, W. L.....Oregon
Babcock, Dr. S. M.....Madison
Bull, Prof. C. P.....St. Anthony Park, Minn.
Cary, Prof. C. P.....Madison
Cheesman, Jas. B.....Racine
Christie, Prof. G. I.....Purdue, Ind.
Emery, Prof. J. Q.....Madison
Harvey, Prof. L. D. Menomonie, Wis.
Hays, W. M.....Washington, D. C.
Hayes, W. A.....Milwaukee
Henry, Dr. W. A....Wallingford, Conn.
Howie, Mrs. Adda.....Milwaukee
Johnson, A. C.....Chicago, Ill.
Karel, Hon. L. A.....Kewaunee
Lehmann, Mrs. Eva.....Woodland
Lehner, Philip.....Princeton
McCormick, G. W..Menominee, Mich.
McKerrow, Supt. Geo.....Pewaukee
Newman, Geo.....Mobile, Alabama
Philips, A. J.....West Salem
Renk, Katharine.....Boise City, Idaho
Rosa, Hon. Chas. D.....Beloit
Russell, Dean H. L.....Madison
Schauer, Hon. A. G.....Kewaunee
Toole, William.....Baraboo
True, Hon. John M.....Madison
Utsunomiya, S. T.....Sapporo, Hokkaido, Japan
Utter, Delbert.....Lake Beulah
Wojta, Prof. J. F.....Madison

MEMBERSHIP BY COUNTIES

ADAMS COUNTY

Carr, Fred N.....Strongs Prairie
Cook, E. D.....Plainville
Crothers, Floyd.....Kilbourn
Johnson, Billie.....Strongs Prairie
O'Neil, Timmie H.....Kilbourn
Prochaska, Geo. W.....Friendship

ASHLAND COUNTY

Johnson, L. M.....Ashland
Peterson, Andrew, Jr.....Ashland

BARRON COUNTY

Bartlett, Wm.....Barron
Driver, Viven.....Rice Lake
Erdahl, M. N.....Rice Lake
Hanson, Hector.....12 Highland St., Rice Lake
Huser, F. E.....Cumberland
Krippner, L. M.....Rice Lake
Mauerman, F.....Chetek
Ness, Arthur.....Cumberland
Ness, Einar.....R. No. 1 Cumberland
Phillips, Everett.....Comstock
Plenty, R. J.....Rice Lake
Rauchenstein, John.....Rice Lake
Svacina, Jacob, Jr.....Rice Lake

BAYFIELD COUNTY

Anderson, John.....Grand View
Bresette, Edw.....Bayfield
Rahmlow, H. J.....R. No. 4, Bayfield
Wittwer, R. E.....Cable
Yderstad, Thoralf.....Mason

BROWN COUNTY

Anderson, Sol.....Green Bay
Cashman, Thos.....De Pere
Davis, Evan R....R. No. 5, Green Bay
De'ahart, L. J....R. F. D., Green Bay
Delwiche, E. J.....1221 Chicago St., Green Bay
Dillon, James H.....De Pere
Holzschuh, Anton....South Kaukauna
Lindeman, Wm. F.....318-6th St., Green Bay
Metzler, Lorenz.....New Franken
Nies, Peter.....Morrison
Parins, Celestin J.....Green Bay
Schmidt, Arthur.....De Pere
Schmidt, Elmer C.....Wrightstown
Schmidt, Harold.....Wrightstown
Van Den Heuvel, Frank.....West De Pere

BUFFALO COUNTY

Bilderbach, W. F.....Mondovi
Bond, Samuel.....Mondovi
Engel, G. H.....Fountain City
Fetting, Elmer.....Cochrane
Hitt, O. A.....Alma
Kaste, A. H.....Alma
Kennedy, B. J.....Nelson
Kennedy, L. J.....Nelson
Kennedy, P. H.....Nelson
Muehleisen, Gottlieb.....Alma
Schlawin, Walter.....Cochrane
Seyforth, H. G.....Mondovi
Suhr, Adolph.....Cochrane
Suhr, O. A.....Cochrane
Whelan, J. V.....Mondovi
Wilk, H. F.....Alma
Wright, Ralph.....Mondovi

BURNETT COUNTY

Barge, W. R.....Yellow Lake
Olson, A. H.....Grantsburg

CALUMET COUNTY

Christoph, Theo. F.....Chilton
Huebner, Aug. H.....Forest Jct.
Huebner, Munrow.....Brillion
Koehler, J. P.....R. 1, New Holstein
Murphy, A. C.....Hayton
Peik, Arthur C.....Chilton
Peik, Carl J.....Chilton
Sevenich, Tony.....Hilbert
Weber, Clifford.....New Holstein
Wipperman, Wm.....Chilton

CHIPPEWA COUNTY

Anderson, Harry
608 N. Grove St., Chippewa Falls
Burnell, Roy.....Chippewa Falls
Cherrier Bros.....Chippewa Falls
Christiansen, W. O.....Chippewa Falls
Fawcett, Louis.....Stanley
Kelley, Murray.....Chippewa Falls
Koepke, Wm. F.
.....R. No. 8, Chippewa Falls
Kramer, H. F.....Bloomer
Lang, P. M.....Chippewa Falls
Lebeis, Frank.....Bloomer
Loether, E. J.....Holcombe
Meaghex, Geo. P
.....R. 3, Chippewa Falls
Roe, Edwin.....Stanley
Siepert, F. W.....Chippewa Falls
Smith, Bradley O.....Bloomer
Vincent, Chas.....New Auburn

CLARK COUNTY

Anderson, Henry V.....Stanley
Dyre, E. L.....Greenwood
Hansen, Wm. C.....Withee
Kauffman, H.....Loyal
Marvin, E. H.....Loyal
Neff, Charles W.....Neillsville
Nelson, Carl.....Greenwood
Peterson, Edwin M.....Curtiss
Sample, F. W....R. No. 2, Withee
Thompson, Arthur.....Curtiss
Umlauft, Rudolph.....Dorchester
Wayne, Joseph.....Greenwood
Wood, Fred.....Owen

COLUMBIA COUNTY

Anacker, Bernhardt.....Portage
Bardeen, C. S.....Pardeeville
Batty, Geo. M.....Poynette
Bell, Frank.....Columbus
Brereton, Thos. D.....Lodi
Buckley, Lawrence.....Kilbourn
Carncross, J. E.....Lodi
Chrisler, Harley.....Lodi
Church, W. H.....R. No. 1, Lodi
Derr, Arthur.....Columbus
Ellickson, A. C.....Arlington
Gloeckler, Theo.....Portage
Grove, Albert.....Columbus
Grove, Christian.....Columbus
Hanson, Harry.....Kilbourn
Hill, John H.....Wyocena
Hughes, J. W.....R. No. 1, Columbus
Johnson, Theo.....Rio
O'Conor, Edw. F.....Lodi
Richards, R. E.....Lodi
Richards, W. M.....Lodi
Stace, A. J.....Portage
Thomas, Edgar A.....Cambria
Trapp, Peter.....R. No. 1, Columbus
Weber, G. H.....Columbus
Wermuth, Geo.....Kilbourn
Wheeler, J. R.....Columbus
Wright, L. A.....Columbus
Young, Rob.....Wyocena

CRAWFORD COUNTY

Aberg, Jacob.....De Soto
Brodt, C. D.....Bridgeport
Carter, G. B.....Bridgeport
Cilley, Leslie.....De Soto
Hjelle, Ole H.....Soldiers Grove
Hudson, Willie.....R. No. 3, Boscobel
Marken, R. L.....Gays Mills
Patten, Wayland.....Boscobel
Stevenson, Carl.....
.....R. No. 5, Soldiers Grove

DANE COUNTY

Alexander, Arch S.....Macfarland
Anderson, Albert.....Mt. Horeb
Anderson, H. C.....Cambridge
Anderson, Henry.....Mt. Horeb
Anderson, Nordahl I.....Cambridge
Angvick, Lars.....Cottage Grove
Anthony, C. E.....Oregon
Anthony, D. C.....Oregon
Anthony, H. R.....Oregon
Bacon, C. W.....Burke
Belda, W. F.....De Forest
Benson, Ed. E.....R. 5, Mt. Horeb
Berg, Carl O.....Stoughton
Bergum, Andrew.....De Forest
Bergum, Arthur.....De Forest
Bergum, P. B.....De Forest
Best, Thos. A.....Belleville
Bewick, Thos.....Madison
Brenhaug, Joseph.....Cambridge
Brickson, Andrew.....Cottage Grove
Brickson, A. C.....Cottage Grove
Brictson, A. M.....Deerfield
Brictson, Sanford.....Deerfield
Brigham, Chas. I.....Blue Mounds
Brue, N. H.....De Forest
Cairns, Frank E.....Mazomanie
Chase, J. P.....Sun Prairie
Chatterton, R. W.....Basco
Chatteron, W. E.....Basco
Chipman, W. R.....Morrisonville
Cole, D. E.....Marshall
Daley, Edwin.....De Forest
Daley, S. S.....De Forest
Damp, De Witt.....Dane
Dreger, Emil.....Madison
Drumasky, George.....Sun Prairie
Eastman, J. S., 511 State St., Madison
Elvehjem, E. G.....Macfarland
Engelstad, Fred.....Cambridge
Ford, J. F.....Mazomanie
Friday, E. E.....Oregon
Garland, J. J.....Madison
Geib, W.J., 314 Campbell St., Madison
Gill, E. R.....R. No. 5, Madison
Gillette, Rufus.....Verona
Goth, W. H.....R. No. 6, Madison
Graber, L. F.....Madison
Grady, Geo.....Oregon
Haight, Joe.....R. No. 5, Madison
Hanna, O.....Mt. Horeb
Hanna, Sylvan.....Mt. Horeb
Hoffman, C. F.....Midway
Hoffman, B. C.....Verona
Holman, Peter.....Windsor
Hopkins, B. F.....Morrisonville
Hopkins, J. W.....Morrisonville
Howie, John.....Waunakee
Jones, E. F.....Sun Prairie
Kaltenberg & Sons.....Waunakee
Kendell, F. W.....Sun Prairie
Kendell, G. W.....Sun Prairie
Kneeland, Peter.....Windsor
Koltes, Jas. F.....Dane
Kossman, Oscar.....Oregon
Korfmacher, Carl.....Cottage Grove
Kuhlman, Arthur H.....Madison
Lee, Lars J.....Cambridge
Lee, Lewis J.....De Forest
Lee, P. A. G.....Deerfield
Lein, L. O., Sr.....Cambridge
Lein, Theo. O.....Cambridge
Leith, B. D.....Madison
Lester, Clayton
.....121 W. Johnson St., Madison
Lyman, C. A.....Madison
McGinnity, A.....Edgerton
McManus, Webb.....Oregon
Marsden, Lawrence W.....Cambridge
Melster, Arthur.....Cambridge

Messerschmidt, S. H.....
.....R. D., Madison
Mitchell, Geo.....Cottage Grove
Mitchell, James.....Cottage Grove
Moore, R. A.....Madison
Nelson, O. L.....Cambridge
Norgord, C. P.....Madison
Notseter, O. H.....Deerfield
Orr, Glen H.....R. No. 4, Madison
Pederson, B. S.....Windsor
Rasmussen, H. G.....Black Earth
Reindahl, A. K.....
.....106 E. Wilson St., Madison
Renk, Wm. F.....Sun Prairie
Rorge, A. J.....Stoughton
Ross, M. F.....Belleville
Ruste, C. O.....Blue Mounds
Ryan, Gerald T.....Sun Prairie
Simpson, L. L.....Edgerton
Smith, Carl.....Morrisonville
Smith, Sam.....Morrisonville
Sorenson, C. A.....Klevenville
Sprecher, F. F.....Burke
Stone, A. L.....Madison
Stone, R. W.....
.....432 N. Francis St., Madison
Swenson, Erwin C.....Mt. Horeb
Tenjum, A. A.....De Forest
Thompson, Melvin.....Mt. Horeb
Veith, Arthur J.....Sun Prairie
Vroman, H. E.....Verona
Wakefield, Chas. A.....
....425 N. Orchard St., Madison
Wernick, Wm.....De Forest
White, Wave.....Marshall
Willmarth, E. E.....Sun Prairie
Witte, Fred H.....Cottage Grove
Zerbel, Louis.....Madison

DODGE COUNTY

Adams, A. W.....Lowell
Barnes, Horace.....Waupun
Barstow, A. F.....Randolph
Barstow, Jas. E.....Randolph
Becker, H. H.....R. No. 2, Juneau
Beule, E. A.....Beaver Dam
Bohl, Anton.....Beaver Dam
Boothroyd, T. C.....Randolph
Bremer, E. O.....Hustisford
Bush, Leonard.....Waupun
Bussewitz, Orlo J.....R. No. 2, Juneau
Bussewitz, Wm.....Juneau
Canniff, H. T.....Juneau
Canniff, Russell.....Juneau
Craig, Chas. W.....Oconomowoc
Fehling, O. E.....Juneau
Goetsch, A. A.....Juneau
Goetsch, F. A.....Juneau
Grebe, F. P.....Fox Lake
Hasse, Louis.....Juneau
Hesprich, John F.....Lomira
Howitt, C. H.....Randolph
Indermuehle, F. A.....Beaver Dam
Johnston, F. R.....Hustisford
Jones, John G.....Beaver Dam
Jones, O. R., Jr.....R. No. 2, Columbus
Jung, J. W.....Randolph
Krause, J. L.....Beaver Dam
Krueger, H. E.....Beaver Dam
Kuhlman, Gustav W.....Lowell
Lenge, Louis J.....Watertown
Luebke, Albert.....Hustisford
Luebke, Aug. K.....Hustisford
Luebke, Frank W.....Hustisford
Meyer, Albert.....Beaver Dam
Miller, Arthur G.....Oconomowoc
Neuberger, Wm. T.....Reeseville
Owens, W. E.....Fox Lake
Pahlke, N. A.....Juneau
Roberts, R. F.....Randolph
Ruesink, H. G.....Waupun
Ryder, H. E.....Hustisford
Schumann, Hugo S.....Beaver Dam
Voight, Wm. C.....Lomira
Voigt, Fred.....Lomira
Weber, E. H.....Beaver Dam
Westphal, F. C.....Randolph

DOOR COUNTY

Abramson, Joll.....Sawyer
Arneson, Alfred H.....Sawyer
Bavry, Rudolph W.....Egg Harbor
Beyer, Geo.....Egg Harbor
Hass, J. A.....Ellison Bay
Holand, H. R.....Ephraim
Jelinek, Benjamin.....Sturgeon Bay
Larson, Eli.....Sawyer
Mallien, J. A.....Brussels
Martens, Chas. F.....Egg Harbor
Powers, W. C.....Ellison Bay
Swenson, Walter.....Sister Bay

DOUGLAS COUNTY

Findlay, R. W.....So. Range
Fowler, H. D.....Superior
Mertes, Frank.....So. Range
Schmidt Bros.....Foxboro
Smith, A. K.....Superior
Stanbury, Ed.....
.....2307 Tower Ave., Superior
Stone, B. N.....So. Range
Vogel, Arthur, 1721-15th St., Superior
Ward, H. D.....Solon Springs
Webb, W. H.....
.....1425 Tower St., Superior

DUNN COUNTY

Brill, Geo. A.....Caryville
Curran, Geo.....Menomonie
Curran, Thos. M.....Menomonie
Dodge, Milford L.....Menomonie
Emerson, Albert.....Wheeler
Gehrking, F. J.....Elk Mound
Kent, H. W.....Rusk
Kent, J. S.....Rusk
Kopp, Elmer F.....R. D., Eau Claire
Langseth, Ingwald.....Menomonie
Mars, Geo. E.....Menomonie
Metzger, H. B.....Menomonie
Ohnstad, Oliver C.....Menomonie
Schlough, Roy.....Wheeler
Sipple, Alfred H.....Menomonie
Stegne, Chris.....Wheeler

EAU CLAIRE COUNTY

Allen, C. L.....Eau Claire
Anderson, Knute.....Eau Claire
Arries, B. M.....Augusta
Arth, Walter.....Eau Claire
Faast, B. F.....Eau Claire
Halbert, J. H.....Augusta
Jackson, Vernon.....Eau Claire
Pierce, M. A.....Fall Creek
Pritchard, J. T.....Eau Claire
Rebensdorf, Fred.....Fairchild
Rossow, Oscar.....Eau Claire
Russell, A. C.....Augusta
Tinker, Arthur.....R. 6, Eau Claire
Winter, W. W.....Eau Claire
Wright, W. C.....R. 4, Eau Claire

FLORENCE COUNTY

Anderson, Victor.....Florence
Bergsten, Emil.....Florence

FOND DU LAC COUNTY

Bonzelet, J. P.....Eden
Briggs, E. T.....R. 7, Fond du Lac
Dickman, Ed.....Brandon

Donovan, F. J.....Vandyne
Finder, Fred.....Vandyne
Gibbard, P. J., ...R. No. 7, Ripon
Goebel, Henry N.....
.....R. 8, Fond du Lac
Hammen, Louis H.....Ripon
Hargrave, Robt.....Ripon
Hills, L. H.....Waupun
Hintz, Hugo F.....Oakfield
Horner, G. B.....Ripon
Hughes, C. W.....Campbellsport
Hughes, Harold.....Campbellsport
Hughes, John E.....Campbellsport
Kuehn, Chas. A.....Brandon
Leemon, Roy E.....Waupun
Leith, R. H.....R. No. 9, Vandyne
Lewandoske, Herman F.....Malone
Mang, A. J.....Ripon
Michels, H.....Malone
Michels, Math.....Peebles
Miller, A. H.....Waupun
Miritz, O. F.....Fond du Lac
Murray, A. K.....Ripon
Rather, A. P.....Peebles
Redmond, E. M.....R. No. 4, Calvary
Schmoldt, Clarence.....Rosendale
Schultz, Otto.....Taycheedah
Schussmann, Harry.....Malone
Stanz, Henry.....Fond du Lac
Walgenbach, John ..R. 5 Fond du Lac
Weeks, Tom S.....Fond du Lac
Wilsie, T. C.....Brandon

GRANT COUNTY

Bannen, R. E.....R. No. 3, Boscobel
Bennett, A. J.....Platteville
Bennett, Clarence V.....Platteville
Bennett, O. J.....Platteville
Biddick, Harry E.....Livingston
Bremmer, G. M.....Muscoda
Cubela, Joseph M.....Muscoda
Di Vall, Wm.....Montfort
Flitsch, Floyd.....R. No. 2, Lancaster
Goldman, Herbert H.....Livingston
Graham, Chester H.....Fennimore
Graham, P. S.....Fennimore
Graham, W. A.....Fennimore
Groom, H. L.....Cassville
Hampton, Clark.....Lancaster
Kettler, Clarence J.....Platteville
Kettler, Roy H.....Platteville
Knutson, Murel.....Livingston
Kolar, F. J.....Muscoda
Kreul, H. C.....Fennimore
Krohn, Edw.....Lancaster
Morse, Edw. B.....Mt. Horeb
Pickering, C. R.....Muscoda
Pink, Leo.....Lancaster
Porter, Geo.....Fennimore
Preston, Geo. M.....Montfort
Ralph, Le Roy.....Cuba City
Runde, August.....Sinsinawa
Runde, Elmer.....Sinsinawa
Runde, Frank.....Louisburg
Runde, Lawrence.....Sinsinawa
Sale, John, Jr.....Muscoda
Spencer, R. R.....Boscobel
Steinhoff, Walter.....Platteville
Stivarius, Geo. A.....R. 4.Fennimore
Tiedemann, H. G.....Platteville
Wienbergen, Oscar.....Platteville
Wise, John H., Jr.....Platteville

GREEN COUNTY

Ames, F. M. & Son.....Brooklyn
Biglow, L. F.....Brooklyn
Brown, Wm. A.....Monroe
Chesebro, Roy E.....Monticello
Dettwiler, Fred.....Monroe
Dettwiler, John.....Monroe
Douglas, O. M.....Brodhead
Geigel, John.....R. No. 6, Monroe
Hoesly, Clarence.....New Glarus
Ingold, Fred.....R. 5, Box 6, Monroe
Jeffery, F. D.....Monroe
Klassey, Henry.....Monroe
Lichtenwalner, Arthur H.....Monroe
Lichtenwalner, C. H.....R. 9, Monroe
Man, H. G.....Brodhead
Morgan, Chas.....Albany
Purintun, C. G.....Monticello
Richards, Ed.....Brooklyn
Smith, Geo. Burr.....Brooklyn
Thorp, Harry E.....Monroe
Trumpy, Fred.....Monroe
Tschudy, Emil.....Monroe
Van Wagenen, Lewis.....Monroe

GREEN LAKE COUNTY

Buzzell, H. L.....Markesan
Davison, Harley.....Markesan
Frei, John.....Markesan
Kutchin, V. S.....Green Lake
Kutchin, Victor.....Green Lake
Page, G. F.....Berlin

IOWA COUNTY

Brunker, J. A.....Ridgeway
Brunker, J. E.....Ridgeway
Convey, Thos.....Ridgeway
Enloe, Jefferson.....Rewey
Farwell, Ray.....Ridgeway
Graber, Edw.....R. D., Mineral Point
Grunenwold, Le Roy C.....Livingston
Kelly, A. N.....Mineral Point
Lauper, Wm. G.....Hollandale
Morrissey Bros.....Arena
Mueller, Alfred.....Arena
Mueller, Henry.....Livingston
Oimoen, Otto.....Barneveld
Paulson, H. E.....Hollandale
Ross, Roland.....Mineral Point
Shannon, H. L.....Avoca
Swenson, W. E.....Hollandale
Van Natta, J. A.....Dodgeville

IRON COUNTY

Peter, Max H. A.....Mercer

JACKSON COUNTY

Dettinger, Stanley.....Hixton
Erickson, Rob.....Melrose
Haag, Frank.....Melrose
Haag, Henry.....Melrose
Hecketsweiler, O. J.....Alma Center
Huseboe, H. M.....Taylor
Jones, P. W.....Black River Falls
Lane, O. J.....Hixton
McNab, A. J.....Black River Falls
Olsen, A. O.....Black River Falls
Olson, Peter S.....Northfield
Ristow, C. S.....Black River Falls

JACKSON COUNTY

Thompson, Adolph..Black River Falls
Wallen, Aron.....Taylor

JEFFERSON COUNTY

Abendroth, Walter.....Waterloo
Albertz, E. F.....R. 5, Watertown
Albrecht, John.....R. 6, Watertown
Bauer, Victor W.....Jefferson
Behling, Edwin.....Johnson Creek
Bridge, R. L.....Lakemills
Bridge, Russell W.....Lakemills
Brueckner, H. C.....Jefferson
Brueckner, Justus.....Jefferson
Emmert, H. L.....Johnson Creek

Emmert, O. J.....Johnson Creek
Goecke, P. L.....Watertown
Guttenberg, Fran. Jr.....Jefferson
Hans, Joe.....R. No. 1, Jefferson
Hardtke, Wm.....Watertown
Henning, Geo.....Watertown
Hooper, S. C.....Palmyra
Huppert, Clifford.....Ft. Atkinson
Huppert, Loran.....Ft. Atkinson
Jaeger, H. C.....Ixonia
Krueger, Alex.....Watertown
Lang, R. H.....Jefferson
Lehmann, Theo.....Watertown
Lenn, E. A.....Palmyra
Longley, H. N.....Dousman
Longley, Walter M.....Dousman
Lowe, Harry.....Ft. Atkinson
Lowe, Laverne.....Ft. Atkinson
Niere, Stuart.....Watertown
Northey, F. G.....Palmyra
Northey, Royal.....Dousman
Northey, W. G.....Palmyra
Parsons, Wm. A.....Ft. Atkinson
Popp, Arthur O.....Jefferson
Rabenhorst, B. W .....Jefferson
Rieck, Wm.....Watertown
Thorne, A. J.....Jefferson
Tutton, Sam F.....Palmyra
Ward, Chas. E.....Ft. Atkinson
Ward, R. W.....Ft. Atkinson
Ward, Theo. S.....Ft. Atkinson
Wollin, Albert C.....Johnson Creek

JUNEAU COUNTY

Cuenot, Fred L.....Mauston
Curtis, E. L.....Mauston
Frederickson, E. A.....Necedah
Frederickson, Hans H.....Necedah
Hansen, Harry.....R. 2, New Lisbon
Mead, R. E.....New Lisbon
Miles, Milo E.....Mauston
Moore, Henry G.....Mauston
Nowicki, John, Jr.....Mauston
Remington, H. E.....Mauston
Remington, Merl O.....Mauston
Schroeder, Leonard.....Camp Douglas
Wagner, J. M.....R.1, Union Center

KENOSHA COUNTY

Barber, Chas.....Trevor
Beimer, Geo.....Salem
Betzer, R. A.....R. No. 1, Kenosha
Cropley, W. R.....Kenosha
Curtis, M. W.....Trevor
Dexter, Walter S.....Kenosha
Holt, Frank & Son.....Pleasant Prairie
Iverson, Carl.....Kenosha
Kerkhoff, Gilbert G.....Bassett
Kreuscher, Wm. R.....Union Grove
Langer, Frank J.....
.....369 N. Chicago St., Kenosha
Lubeno, H. A.....Trevor
Lubeno, H. B.....Trevor
Neuhaus, John.....Bristol
Reynolds, Delos.....Pleasant Prairie
Rhodes, Louis.....Kansasville
Roberts, F. W.....Woodworth
Sheen, C. J.....Salem
Thiers, L. M.,426 Park Ave., Kenosha
Williams, K. B.....R. No. 3, Kenosha

KEWAUNEE COUNTY

Boudnick, John.....R. 7, Kewaunee
Cherveny, Wenzel.....Kewaunee
Collin, D. W.....Luxembourg
Glandt, R. C.....Kewaunee
Haevers, Martin.....R. 4, Luxembourg
Jelinek, Wm.....Kewaunee
Kassner, Edward.....R. 6, Kewaunee
Katel, Wm.....Kewaunee
Krofta, Rudolph.....R. 3, Kewaunee
Nemetz, Frank.....Kewaunee
Prochnow, F. F.....Luxembourg
Schmidt, Wm. Jr.....Algoma
Servais, O. C.....Luxembourg
Stangel, Richard.....R. 1, Kewaunee
Thibodeau, Elmer.....Luxembourg
Zahorick, A. J.....Kewaunee

LA CROSSE COUNTY

Bergum, Arthur.....West Salem
Campion, T. H.....Onalaska
Casey, Harry T.....Argyle
Cashberg, C. M.....Holmen
Davis, L. H.....Bangor
Dawson, W. J.....La Crosse
De Boer, Martin.....Midway
Dengel, Peter.....R. No. 1, La Crosse
Eggler, V.....R. No. 1, La Crosse
Fass, Wm. M....R. 1, Box 3, Onalaska
Griswold, H. W.....West Salem
Harrison, F. A.....Bangor
Hauser, Albert.....R. No. 3, La Crosse
Hemker, F. H.....West Salem
Hoeth, Geo.....La Crosse
Lovejoy, H. D.....West Salem
Markle, S. P.....La Crosse
Moos, Otto.....Onalaska
Moos, Wm.....Onalaska
Nuttelman, Alfred.....West Salem
Nuttelman, Fred.....West Salem
Ofstedahl, Walter.....Holmen
Olson, Gust.....Onalaska
Peters, Edw.....La Crosse
Pralle, Harry.....R. No. 3, La Crosse
Quall, O. P.....Midway
Van Loon, John.....La Crosse
Westerhouse, Garret....R. 1, Onalaska
Whitbeck, W. F.....Onalaska
Whitehead, H. W.....Rockland
Wielinga, Jippa.....Midway
Willey, Jewett.....Holmen
Williams, Elias R.....Bangor
Wolf, Otto.....La Crosse

LAFAYETTE COUNTY

Andrews, A. L.....So. Wayne
Ayen, Ole.....Blanchardville
Chapman, J. R.....South Wayne
Denure, Harry.....South Wayne
Glindinning, H. L.....Shullsburg
Homb, H. C.....South Wayne
Ingwell, Albert.....Blanchardville
Kolden, Teddy.....Blanchardville
Maaske, Henry.....South Wayne
Monson, M. O.....Woodford
Perry, Wm. H.....Gratiot
Riechers, E. J.....Belmont
Riechers, F. B.....Belmont
Rood, Henry J.....South Wayne
Rood, Minnick C.....South Wayne
Road, Ole C.....South Wayne
Ruskell, Raymond.....Belmont
Smith, J. F.....Darlington
Strommen, Anton.....Blanchardville
Strommen, Morris.....Blanchardville

LANGLADE COUNTY

Carlson, L. E.....Bryant
Follstad, Anton.....Elcho
Hutchinson, Paul.....Bryant
Marmes, Peter, Jr.....Antigo
Oldenburg, Albert.....R. 1, Antigo
Peterson, Carl.....R. 3, Antigo
Schmidt, Rose.....Antigo
Schwartz, John.....R. 4, Antigo

LINCOLN COUNTY

Baumann, Arthur.....Merrill
Baumann, Ed. H.....Merrill
Reich, Walter O.....Irma
Wrabetz, Frank.....Tomahawk

MANITOWOC COUNTY

Axley, Walter.....Cleveland
Arends, Albin H, ...R. 3, Cleveland
Berge, Albert.....Valders
Berge, Otis J.....Valders
Bernhardt, Oscar.....R. 2, Two Rivers
Brockhoff, Paul.....Manitowoc
Bruhn, J. F.....R. No. 1, Two Rivers
Clusen, Reinhold.....Manitowoc
Dvorak, Henry....R. No. 3, Mishicot
Eiseman, Harvey....R. 2, Two Rivers
Garey, James, ...R. 6, Manitowoc
Gustavson, Chas.....R. 4, Manitowoc
Heidemann, O. C.....R. No 2, Kiel
Hetzel, Gilbert.....Cleveland
Hoefner, Herbert.....R. 1, Manitowoc
Jarr, Thorval.....Manitowoc
Johannes, Albert.....Two Rivers
Kiel, Fred.....Manitowoc
Klann, Adolph.....Reedsville
Klessig, Edwin.....Cleveland
Koellmer, Gustav.....Cleveland
Linnane, Dan J.....Reedsville
Lorfeld, A. E.....Cleveland
Lutze, Geo.....Cleveland
Mandel, Arthur.....Two Rivers
Moldenhauer, W. C.....
.....R. 1, Manitowoc
Reinertson, R. M.....Valders
Rogney, E. T.....Valders
Sampe, Fred C., ...R. 5, Manitowoc
Schuster, Chas. J.....Manitowoc
Stein, Joseph N.....R. 2, Cleveland
Strowig, Wm. A.....Cleveland
Wiegand, O. R.....Cleveland
Witte, Fred.....Two Rivers

MARATHON COUNTY

Baesemann, Otto.....Edgar
Blocgynski, Leo.....Athens
Burg, A. G.....Wausau
Burg, Harold O.....R. No. 2, Wausau
Frane, Victor.....Colby
Hass, Arthur.....Merrill
Hoge, Will.....Athens
Kreutzer, Alf. F.....Athens
Maguire, Leo.....Halder
Munkwitz, W. E. R.....Edgar
Olson, Melvin.....R. No. 1, Mosinee
Parsch, Gustav.....Wausau
Powell, Lester J.....Galloway
Reiser, Arthur.....Ringle
Runke, Rufus R.....Athens
Schelb, Joseph.....Stratford
Steinhaus, W. E.....Rozellville
Steinwand, Theo.....Colby
Vaughan, John M.....Unity
Von Berg, W. A.....Mosinee
Whitemore, Edw.....Wausau
Zimmerman, C. H.....R. 2, Wausau
Zimmerman, H. R.....Wausau

MARINETTE COUNTY

Bullock, D. S.....Marinette
Christ, Harold P.....Wausaukee
Ramsay, John S.....Peshtigo
Remington, Ray.....Marinette

MARQUETTE COUNTY

Ellis, John B.....Endeavor
Hamilton, T. S.....Westfield
Hume, Robt. I.....Endeavor
Judd, Roy C.....Endeavor
Lindner, Geo.....Endeavor
Marti, H. E.....Packwaukee
Parrott, A. H., Jr.....Endeavor
Reid, D. H.....Montello
Williams, J. R.....Packwaukee

MILWAUKEE COUNTY

Angebroth, Chas. H.....
.....1303-8th St., Milwaukee
Babcock, Chas. L.....
404 Colby-Abbot Bldg., Milwaukee
Barte, Geo. W.....
.....587 First Ave., Milwaukee
Basse, Wm. H.....R. No. 5, West Allis
Benecke, E. H. A.....Milwaukee
Bernhardt, Chas. R.....Hales Corners
Duve, H. F.....Box 126, West Allis
Hickcox, J. Gilbert.... White Fish Bay
Kurtze, Otto.....R. No. 4, West Allis
Marti, Herman..... R. 2. Milwaukee
Meyer, Alfred J.....R. 18, Oakwood
Pagenkoff, Louis.....
.....1486-17th St., Milwaukee
Rasche, A. L.....
....785 Indiana Ave., Milwaukee
Ruff, Harry T.....
.....865-19th Ave., Milwaukee
Sievers, F. J.....Wauwatosa
Stemmler, Wm.....
.....747 Becker, Milwaukee
Swan, N. J.....Wauwatosa
Von Doemining, Ernest.....
.....R. No. 4, West Allis
Warzyn, Art.....Oakwood
Weaver, E. W.....Wauwatosa

MONROE COUNTY

Aarness, O. C.....Cashton
Aney, Earle L.....Norwalk
Evans, John L.....Sparta
Foth, E. A.....Norwalk
Foth, F. D.....Norwalk
Freeman, G. A.....Sparta
Hall, Hassen.....Sparta
Hanchett, W. H.....Sparta
Harris, R. E.....Warrens
Hubbard, W. E.....Norwalk
Kirst, A. L.....Tomah
Mistele, Wm. O.....Kendall
Muhlenkamp, Leo.....Norwalk
Olson, Louis F.....Tomah
Sargent, J. E.....Sparta
Verken, Abner E.....Norwalk
Vieth, H. E.....Norwalk
Wyatt, E. E.....Tomah
Ziese, Fred F.....Kendall
Zirk, P. A.....Kendall

OCONTO COUNTY

Anderson, Alfred.....Mosling
Bogsted, A. C.....Lena
Brock, Martin L.....R. 1, Lena
Bubolz, Otto.....R. No. 1, Underhill
Cole, Schley.....Mountain
John, A. C.....Gillett
Kehl, John.....R. No. 1, Oconto
Lembcke, Louis.....Oconto Falls
Martineau, Andrew.....Gillett
Piepenburg, Bert.....Gillett

ONEIDA COUNTY

Blumenstein, Art.....Woodruff
Campbell, Fred.....Three Lakes
Grusch, Jos.....Enterprise
Juday, W. D.....Rhinelander
Kugel, Chas.....Robbins
Michaelson, Chris.....Hazelhurst

Schoeneck, Gust, Jr.....Enterprise
Schoeneck, Herman.....Enterprise
Schoeneck, Otto.....Enterprise
Schoeneck, Paul.....Enterprise

OUTAGAMIE COUNTY

Bailey, Herbert A.....R. 1, Appleton
Brucewitz, C. H.....Black Creek
Cuff, O. P.....Hortonville
Jamison, Clarence.....R. 2, Appleton
Jamison, Harvey.....R. 2, Appleton
Jamison, Howard.....R. 2, Appleton
Jamison, Rob.....R. 2, Appleton
Jamison, Stanley.....R. 2, Appleton
Jamison, W. G.....R. . 2, Appleton
Knapstein, Wm.....New London
Letts, E. F.....R. No. 4, Appleton
Lyon, Earl.....New London
Masche, Edw. M.....Hortonville
Meulemans, Mathias.....Kaukauna
Mueller, Ed. O.....Appleton
Nieman, Arnold.....Greenville
Palmback, Geo. A.....R. 2, Appleton
Prugh, R. Bayard.....Kaukauna
Raeder, Wm. Jr.....Sugar Bush
Ryan, Malachi.....So. Kaukauna
Schmit, Geo.....R. 16, Greenville
Thoma, Ernest.....Sugar Bush
Tubbs, Frank W.....Seymour
Tubbs, Herbert.....Seymour
Wieckert, Walter H.....R. 4, Appleton
Wussow, C. A.....Seymour

OZAUKEE COUNTY

Bartell, Reinhard.....Thiensville
Blank, G. A.....Grafton
Blank, Harry.....Grafton
Clansing, Herbert.....Grafton
Dineen, C. F.....Cedarburg
Dobberpuhl, Erwin D.....Cedarburg
Kieffer, Mike.....Fredonia
Kressin, Reinhold.....R. 2, Cedarburg
Kressin, Wm.....Cedarburg
Moths, Alvin C.....Fredonia
Nero, Wm. C.....Cedarburg
Pierner, J. W.....Thiensville
Sorweid, Wm.....R. No. 2, Cedarburg

PEPIN COUNTY

Brooks, Ralph.....Arkansaw
Gustafson, Theo.....Stockholm
Jahnke, Julius.....Pepin
Peters, Charles F.....Pepin
Throne, C. W.....Eau Galle
Fleishauer, C. K.....Arkansaw

PIERCE COUNTY

Anderson, Oscar.....Ellsworth
Bailey, F. D.....Prescott
Baker, Roy O.....Maiden Rock
Brown, Monro.....Bay City
Chapman, J. L.....River Falls
Chapman, W. A.....River Falls
Finstad, Frank.....Beldenville
Fox, E. B.....River Falls
Fuller, R. J.....Maiden Rock
Goodwin, H. V.....Prescott
Gustafson, A. R.....Maiden Rock
Hanson, H. O.....Spring Valley
Jackson, Chas. O.....Spring Valley
Smith, Fred.....River Falls
Wild, Ed.....Elmwood

POLK COUNTY

Berg, A. E.....Centuria
Chelstrom, H. Herb.....Turtle Lake
Chell, Vivian.....Frederick
Engelhardt, Guy C.....Osceola
Engelhardt, N. J.....Osceola
Fahland, Louis.....Clam Falls
Jenson, Jens.....
.....c/o C. P. A. Jenson, Luck
Johnson, William.....Clam Falls
Johnson, Willie N.....Cushing
Klinka, J. S.....Balsam Lake
Larsen, Fred S.....Milltown
Nielsen, Marius.....Luck
Perry, E. B.....Amery
Perry, Richard.....Amery
Peterson, Henry.....R. 1 Centuria
Peterson, Marius.....Luck
Rehbein, A. E.....R. 1, St. Croix Falls
Robertson, Axel.....Luck
Voltz, Fred.....Clear Lake
Wilcox, C. R.....Balsam Lake

PORTAGE COUNTY

Brekke, Anton B.....R. 1, Rosholt
Coyner, J. M.....Amherst Jct.
Frost, H. G.....Almond
Gordon, Le Roy W.....Nelsonville
Hansen, N. P.....R. 2, Amherst Jct.
Kollock, Henry.....Bancroft
Olson, Pierce.....Amherst
Peterson, A. O.....R. 2, Amherst Jct.
Peterson, Arthur.....Nelsonville
Shelburne, A. H.....Bancroft

PRICE COUNTY

Frank, Dismas.....Phillips
Hoffman, Conrad.....Phillips
Maeder, J. W.....Brantwood
Nelson, Elmer.....Prentice

RACINE COUNTY

Block, Hieron J.....R. 22, Burlington
Bradley, J. F.....Franksville
Bryant, Clifford.....Racine
Chambers, O. Q.....Union Grove
Cook, Geo. L.....Burlington
Cook, J. O.....Burlington
Cooper, Archie H.....Franksville
Dunkelow, W. H.....Franksville
Erle, Geo.....Caledonia
Hess, Geo.....Franksville
Mekulecky, Jos.....Racine
Nelson, H. A.....Union Grove
Nelson, R. W.....Union Grove
Renak, Edw.....Racine
Rhodes, Clarence.....Kansasville
Rhodes, F. L.....Kansasville
Robers, W. H.....R. 20, Burlington
Rolfson, C. E.....Waterford
Schelling, Edw. W.....R. 2, Racine
Schelling, J. J.....R. 2, Racine
Scott, John C.....Caledonia
Stephen, Geo.....R. No. 1, Racine
Zachar, M. R.....R. No. 1, Racine

RICHLAND COUNTY

Draheim, H. T.....Gotham
Fogo, Geo.....Gillingham
Ghastin, Floyd.....Twin Bluffs
Jewel, Harold.....Viola
Matthes, Fred G.....Viola
Nourse, Glen.....Sextonville
Post, H. L.....Sextonville
Smith, J. H.....Gotham
Stanek, V. T.....Bloom City
Strang, Frank.....Lone Rock
Thorpe, J. R.....Tavera
Turgasen, H. A.....Richland Center
Turgasen, J. H.....Richland Center
Welton, G. E.....Twin Bluffs

ROCK COUNTY

Austin, A.....Janesville
Benedict, E. L.....Beloit
Caldo, Leslie.....Janesville
Clarke, Perle H.....Milton Jct.
Coon, Elam P.....Milton Jct.
Dougan, W. J.....Beloit
Gooch, O. D.....Hanover
Greene, J. H.....Clinton
Hahn, Robt. F.....R. 3, Clinton Jct.
Homes, G. A.....Beloit
Howorth, Arthur.....R. 1, Janesville
Huebbe, E.....Beloit
Johnson, Arthur F.....Milton Jct.
Johnson, Roy M.....Edgerton
Jones, Arthur E.....Janesville
Kramer, Lawrence A.....Edgerton
Lentell, Bennie V.....R. 25, Beloit
Miller, H. E.....R. 8, Janesville
Moore, F. W.....R. No. 30, Beloit
Raessler, F. H.....Beloit
Raessler, N. R.....Beloit
Rosenthal, Fred W.....Evansville
Sayre, J. E.....Edgerton
Shuman, Frank.....Koshkonong
Strouse, Lyman L.....Edgerton
Waldmen, Fred.....Janesville
Ward, H. L.....Avalon
Wheeler, E. D.....Beloit
Winkley, C. A.....Clinton Jct.

RUSK COUNTY

Boyd, Henry.....Tony
Brainerd, Benj. A.....Bruce
Brainerd, S. J.....Bruce
Gourdoux, Claude.....Flambeau
Reihmer, Carol.....Weyerhauser
Van Patten, Jim.....Glen Flora

ST. CROIX COUNTY

Alton Bros.....River Falls
Arnquist, J. F.....New Richmond
Arnquist, J. R.....New Richmond
Aune, H. A.....Baldwin
Bader, Alfred.....New Richmond
Bader, R. C.....New Richmond
Bennett, W. E.....New Richmond
Brown, O. H.....New Richmond
Brunner, R. W.....Hudson
Casey, W. H.....New Richmond
Dowling Bros.....Hudson
Fay, A. W.....New Richmond
Fay, R. E.....New Richmond
Fillback, Walter.....Hudson
Foster, S. S.....New Richmond
Gindley, E. W.....Hudson
Gust, Wm.....R. No. 2, Deer Park
Heebink, Henry.....Baldwin
Heebink, Wm.....Baldwin
Hogan, E. J.....New Richmond
Imrie, David.....Roberts
Jabusch, Arthur....R. No. 2, Deer Park
Jabusch, Henry....R. No. 2, Deer Park
Jabusch, Wm.....Deer Park
Jones, F. B.....Deer Park
Kruschke, A. C.....New Richmond
Legrid, H. E....R. No. 1, Deer Park
Legrid, Wm....R. No. 1, Deer Park
Lowe, Hugh.....River Falls
McGinley, Wm.....Baldwin
Meinpe, Emil.....Somerset
Neitge, Ed.....Deer Park
Rudd, R. R.....Deer Park
Ruemmele, Albert.....Hudson
Ruemmele, Geo. J.....Hudson
Ruemmele, J. F.....R. 1, Hudson
Schwandt, Wm.....Deer Park
Sether, Nels.....R. 1, Deer Park
Stiles, Chas. L.....Hudson
Thome, Raymond.....Hudson
Thorne, F. W.....Hudson
Torkelson, Arthur....R. 2, Deer Park
Tracy, Lyman.....New Richmond
Uber, Dewey.....New Richmond
Webster, W. E.....Hudson
Wessels, Henry.....Baldwin
Williamson, G. S.....R. 2, Deer Park

SAUK COUNTY

Bayles, D. A.....Merrimack
Borck, Sam.....North Freedom
Border, Merrill A.....Baraboo
Claridge, Albert.....Reedsburg
Clingman, E. E.....Reedsburg
Clingman, W. D.....Reedsburg
Davies, G. W.....North Freedom
Fish, Warren L.....Delton
Fredrickson, Fred.....Spring Green
Gonsolin, Fred E.....Reedsburg
Hatz, J. A.....Prairie du Sac
Hinrichs, Ernest.....Reedsburg
Johnson, Glenn.....R. 2, Baraboo
Johnston, Marvel.....Limeridge
Jones, Glen.....Merrimack
Kinsman, Glenn.....Lavalle
Kuehn, H. F.....Spring Valley
Langdon, Earl.....Baraboo
Lawrenz, H. L.....R 1, Reedsburg
Lillich, Wm.....Merrimack
Lindsay, John E.....Reedsburg
McGilvra, Ed.....Baraboo
McGinnis, Chas.....Baraboo
McLeish, Roy.....Merrimack
Metcalf, Harlan.....Spring Green
Metcalf, Raymond.....Spring Green
Montgomery, Lyman.....Reedsburg
Ochsner, Arthur.....Plain
Peck, Burton.....Spring Green
Peck, H. B.....Spring Green
Peck, Lionel E.....Spring Green
Premo, W. H.....Baraboo
Robson, Forrest.....Spring Green
Rodewald, W. C.....Baraboo
Rupf, Edw. F.....Sauk City
Rusch, Albert.....Reedsburg
Rusch, E. W.....Reedsburg
Sprecher, Wesley.....Plain
Steidtmann, Edwin.....Merrimack
Stuchert, Erwin H.....Lone Rock
Thorne, F. L.....Ableman
Trueb, Waldo R.....Spring Green
Voeck, G. E.....North Freedom
Wichern, Wm....R. No. 4, Baraboo

SAWYER COUNTY

Kies, John.....Winter
Uhrenholdt, Jens.....Hayward
Uhrenholdt, S. J.....Hayward

SHAWANO COUNTY

Berg, Carl J.....Tigerton
Erickson, Elmer.....Rose Lawn
Gjermandson, Martin.....Tigerton
Grinstad, Arthur.....Wittenberg
Hildeman, Alex E.....Belle Plaine
Johnson, Rudolph.....Rose Lawn
Mueller, Herman C.....R. 1, Shawano
Naber, H. L.....Cecil
Noorbon, Gust.....Eland
Olson, Willie G.....R. 2, Wittenberg
Peterson, W. F.....R. 2, Pulaski
Pleshek, Frank.....Shawano
Sorley, E. B.....Tigerton

SHEBOYGAN COUNTY

Athorp, Geo. O.....R. 6, Haven
Athorp, W. G.....R. 1, Sheboygan
Deer, Joseph D.....Sheboygan Falls
Frauenheim, O. R.....Random Lake

Herberer, C. H.....R. No. 9, Adell
Hoppert, M. J....R. No. 4, Sheboygan
Kappel, Gustav.....Waldo
Knoener, Geo.....Plymouth
Liebenstein, F. L.....Cascade
Marx, O. H.....R. No. 6, Haven
Opgenorth, Anton E.....Sheboygan
Parrish, J. O.....Plymouth
Reineking, Rudolph H.....
.....Sheboygan Falls
Rock, Carroll G.....R. 26, Plymouth
Saemann, Maurice.....Adell
Streiber, W. G.....R. 33, Elkhart Lake
Ten Pas, Walter B.....Cedar Grove
Torke, Ernest J.....Adell
Wagner, A. L.....Haven
Wunsch, Alfred J. C..Sheboygan Falls
Wunsch, Hugo.....R. No. 6, Haven

TAYLOR COUNTY

Bartleson, Harvey.....Medford
Buehler, Geo.....Medford
Harden, Henry C.....Medford
McIlroth, Rae.....Medford
Schemanski, Albert.....Stetsonville

TREMPEALEAU COUNTY

Becker, P. V.....Galesville
Bishop, W. E.....Arcadia
Bohrnstedt, L. S.....Trempealeau
Brovold, A. J.....Ettrick
Carlson, Ed.....Pigeon Falls
Chappell, G. E.....Trempealeau
Eid, Albert.....Pigeon Falls
Ekern, Alfred.....Ettrick
Hagestad, A. C.....Ettrick
Hanson, L. M.....Eleva
Hardie, L. E.....Galesville
Hegge, Albert.....Galesville
Hellickson, J. A.....Ettrick
Johnson, J. G.....R. No. 3, Blair
Kinservick, Thor.....Whitehall
Lamberson, R. A.....Whitehall
Lehnerts, Edmund.....Arcadia
Markham, F. C.....Independence
Mattison, Thos.....Blair
Moen, Gilbert.....Eleva
Nelson, Newell.....Whitehall
Peterson, Bros.....Blair
Reid, Geo. R.....Independence
Ristau, E. O.....Osseo
Strader, Rolla A.....Osseo
Thompson, A. L.....Blair
Thompson, E. H.....Blair

VERNON COUNTY

Amodt, J. C.....Viroqua
Bendel, John.....Stoddard
Christensen, Hans G.....Cashton
Dahl, A. J.....Viroqua
Davis, J. Kenneth.....Viroqua
Echhart, Burton.....Viroqua
Errickson, H. N.....Cashton
Freehoff, Edwin.....Coon Valley
Getter, Albert.....Viroqua
Getter, Pearl.....Viroqua
Gianoli, John A.....Genoa
Hoilien, Dave.....Viroqua
Johnson, Alf.....Westby
McClurg, Harry.....Viroqua
McClurg, Walter.....Viroqua
McMullin, Ray.....Viroqua
Molley, Glenn F.....Ontario
Oberson, Selmer.....Westby
Rogers, H. J.....Stoddard
Rundahl, Alton.....Coon Valley
Sebion, Stanley.....Westby
Shumway, Philip.....Genoa
Welch, R. S.....R. No. 3, Viroqua

WALWORTH COUNTY

Ames, H. F.....Elkhorn
Ames, Lloyd.....Elkhorn
Bowers, Leland.....Delavan
Brennan, G. E.....Lake Geneva
Brennan, John.....Lake Geneva
Broome, R.....Walworth
Dunwiddie, W. R.....Delavan
Ells, F. W.....Elkhorn
Ells, Ross H.....Darien
Gates, Ryerson D.....Fontana
Hafs, Oscar.....Genoa Jct.
Harris, J. S.....Delavan
Hoeft, Ed.....East Troy
Hull, H. H.....Whitewater
Kelsey, Forrest B.....Delavan
Kimball, L. A.....Lake Geneva
Kiteley, Leonard W.....Sharon
Kuenzli, H. C.....Lake Beulah
Ledger, Albert.....Lake Geneva
Lewis, E. H.....Whitewater
Magvon, E. L.....Whitewater
Mathews, M. D.....Whitewater
Palmer, F. Earl.....Lake Geneva
Pester, C. J.....Whitewater
Pester, J. H.....R. 3, Whitewater
Pester, Walter J.....R. 3, Whitewater
Peters, Ezra.....Sharon
Peters, Ralph A.....Darien
Piper, Harry.....Sharon
Robinson A. S.....Lake Geneva
Smith, Theo. H.....Delavan
Stury, Anton.....R. No. 1, Elkhorn
Taube, H. E.....Elkhorn
Thacher, Ed. F.....Zenda
Thomien, Peter.....Genoa Jct.
Weaver, Geo.....Elkhorn
Westphal, Ray.....Elkhorn
Wright, John.....Whitewater

WASHBURN COUNTY

Carlson, M. J.....R. 2, Spooner
Melby, Dan.....Spooner
Melby, Sigvart.....Spooner
Rylander, Ed.....Shell Lake
Soholt, G. L.....Madge
Soholt, Ole S.....Madge

WASHINGTON COUNTY

Baertlein, W. A....South Germantown
Butzke, Louis.....Jackson
Ebbing, Albert A.....Richfield
Groth, Albert.....Rockfield
Groth, Hugo.....Cedarburg
Groth, Louis.....Cedarburg
Groth, Walter.....R. D., Cedarburg
Gutschenritter, Arthur J.....Hartford
Hoelz, Christ P.....Rockfield
Janz, Jacob.....West Bend
Joeckel, H. G.....Jackson
Kauth, J. A.....So. Germantown
Klinka, Joe.....West Bend
Klumb, Arthur.....Rockfield
Lepien, Roy.....Hartford
Mantz, Milton M.....Richfield
Puls, A. O.....R. 4, Hartford
Puls, John.....Hartford
Salter, Milo.....R. 5, West Bend
Schottler, C. J.....So. Germantown
Schowalter, E. J.....Jackson
Techtman, C. W.....R. 4, Kewaskum
Ziemer, P. F.....R 2, Jackson

WAUKESHA COUNTY

Bowe, R. E. L.....Oconomowoc
Boyd, J. T.....R. 7, Waukesha
Brady, L. A.....Mukwonago
Butler, G. C.....R. 20, Templeton
Christensen, John L.....Hartland

Connell, E. J.....Menomonee Falls
Connell, W. A.....Menomonee Falls
Cumming, G. H.....Dousman
Dibble, Roy....R. 18, Menomonee Falls
Dobbertin, Grover.....Hartland
Edwards, David R.....R. 31, Wales
Emery, Raymond J.....Oconomowoc
Fuller, Stanley.....North Lake
Goetz, Clarence.....R. 22, Waukesha
Gunderson, Forrest.....Oconomowoc
Gunderson, A. Lee.....Oconomowoc
Hall, Frank.....Hartland
Hall, John.....Hartland
Hensel, Max H.....Dousman
Hill, Chas.....Brookfield
Hill, Chas. F.....Brookfield
Hill, J. T.....Waukesha
Hill, W. H.....Brookfield
Husten, Lawren E.....Eagle
Ingels, J. E.....Wales
Jeffery, H. B.....Menomonee Falls
Kollath, Wm.....Menomonee Falls
Kuhtz, Conrad H.....Waukesha
Kuhtz, P. H.....R. No. 1, Waukesha
Lean, Roy.....R. F. D., Dousman
Lobdell, M. C.....Mukwonago
Luebke, Wm.....R. 26, Oconomowoc
Lurvey, Clayton.....Dousman
Messner, Arthur G.....
.....Owendale Farm, Genessee
Mitchell, C. J.....Brookfield
Mitchell, Dean S.....Brookfield
Mitchell, Paul.....Brookfield
Mitwede, Henry.....R. 1, Waukesha
Nicholas, D. C.....R. 4, Waukesha
Omann, E. H.....North Lake
Otto, Alfred H.....Oconomowoc
Petersen, Carl T.....North Lake
Phurvey, Clayton.....Dousman
Reather, Edward.....Lannon
Reather, Herman.....Lannon
Reyer, W. R.....Templeton
Rosenow, Arthur.....Oconomowoc
Rosenow, H. E.....Oconomowoc
Schuster, W. M.....Oconomowoc
Seitz, Adam.....Waukesha
Sleep, S. S.....North Lake
Swartz Bros.....Waukesha
Tebbetts, Frank.....Plainfield
Voje, J. H. Jr.....Oconomowoc
Weir, Robt. J.....Mukwonago

WAUPACA COUNTY

Boyce, Eugene.....Waupaca
Constance, F. R.....Waupaca
Daniels, Dallison..R. 3, New London
Heinke, O. A.....Sugar Bush
Hoyord, W. E.....Scandinavia
Jacklin, Leon.....Waupaca
Keating, F. E.....Ogdensburg
Keating, J. R.....Ogdensburg
Kendall, Myron.....Iola
Kneip, Wm.....Weyauwega
Knoke, Hugo.....Readfield
Knutson, A. C.....Ogdensburg
McCabe, John.....Waupaca
Meisner, Wm.....Embarrass
Mueller, Ed. W.....Bear Creek
Nace, F. A.....Iola
Olson, Ludvik C.....Scandinavia
Pirner, Carl.....R. No. 4, Manawa
Pirner, John.....R. No. 4, Manawa
Potts, A. R.....Waupaca
Rowe, A. B.....Waupaca
Sawall, Lewis A.....New London
Schmidt, Nicholas.....New London
Schoen, Herman.....Manawa
Schroeder, Alvin.....Bear Creek
Sether, Earl M.....Iola
Shambean, A. D.....Ogdensburg
Smith, Henry.....R. 4, Waupaca
Stearns, Arlington C.....Weyauwega
Steege, Herbert .....Embarrass
Tubaas, O. G.....Iola
Virchow, L. C.....New London
Vollbrecht, Frank....R. 40, Bear Creek
Weinnann H.....R. No. 2, Iola
Williams, Faville D.....Bear Creek
Williams, Stanley A.....Bear Creek

WAUSHARA COUNTY

Barnes, P. H.....Hancock
Bartleson, Lester.....Pine River
Bridgeman, C. G.....Wautoma
Byse, Gage B.....Wautoma
Eagan, J. J.....Wautoma
Eager, Rolland D.....Hancock
Harris, A. M.....Plainfield
Hughes, John D.....R. 1, Wild Rose
Jacobs. A. F.....R. 1, Coloma
Knuteson, E. L.....Wautoma
Leach, John F.....Wautoma
Leach, Leonard.....Wautoma
Roberts, Ellis W.....Wild Rose
Shippee, Geo. L., Jr.....Plainfield
Simonson, Clarence.....Wautoma
Simonson, Glenn.....Wautoma
Spear, L. W.....Plainfield
Storzbach, Emil M.....Plainfield
Thompson, Ellef N.....Wautoma
Thompson, H. A.....Wautoma
Thompson, Martin.....Wautoma
Wiley, Mrs. W. J.....Hancock

WINNEBAGO COUNTY

Boss, U. C.....Oshkosh
Bussey, W. E.....Omro
Calkins, U. B.....Allenville
Cross, A. J.....Allenville
Downs, Benjamin.....Pickett
Graf, Kurt G....R. 1, Box 94, Oshkosh
Harness, W. G.....Neenah
Ihrig, J. J.....R. 4, Box 8A, Oshkosh
Jackson, Van E.....R. 7, Oshkosh
Jahnke, Albert....R. No. 11, Neenah
Jennings Bros.....Pickett
Krings, Joseph.....Winneconne
Parks, Wm. S.....Pickett
Plummer, A. P.....R. D., Oshkosh
Pommerening, Edw. C.. R. 2, Oshkosh
Race, Edw.....R. No. 22, Omro
Rauchenstein, Emil.....Omro
Roberts, Keil S.....Pickett
Shepherd, W.....Rockford, Ill.
Slayton, C. H.....R. No. 5, Oshkosh
Teela, F. W.....Winneconne
Treleven, Guy.....Omro
Walter, A.....R. No. 7, Oshkosh

WOOD COUNTY

Bean, A. P.....Vesper
Behling, Wm. R.....R. 1, Vesper
Clark, W. W.....Ellsworth
Huser, C. J. Bros., R. 3, Grand Rapids
Len, O. J.....R. 3, Grand Rapids
Lipsitz, Bessie....R. 8, Grand Rapids
Maas, Chas.....Marshfield
Molter, Herbert.....Marshfield
Ten Pas, John A.....Arpin
Ten Pas, Wm. J.....R. 2, Arpin
Ward, Harvey.....Babcock
Ward, W. L.....Dexterville

CANADA

Gutschenritter, F. J.....
.....Scott, Saskatchewan
Bigger, T. S.....Walkersville, Ontario
Kramer, C. N....Walkersville, Ontario

CALIFORNIA

Belz, F. A.....Box 89, R. 2, Visalia

CONNECTICUT

Schlaffer, Max
.....c/o A. Shulman, Winsted

ILLINOIS

Andrews, E. R.
.....320 N. Waller Ave., Austin
Atkins, Leslie.....Warren
Bartos, Otto T.
1824 S. Ashland Ave., Chicago
Berghund, W. A.....Pecatonica
Breyfogle, Hugh H.....West Pullman
Breyfogle, L. G.....West Pullman
Brown, Floyd.....Genoa
Campbell, Fred T.
.....314 So. Hale St., Wheaton
Carter, Cyrus.
.....392 N. Galena Ave., Freeport
Chetlain, L. A.....Galena
Clingan, Chas.
.....90 Arcady Farm, Lake Forest
Coffin, Russell..... R. 7, Rockford
Dixon, J. Allen.
.....823 E. 55 St., Chicago
Egan, Miss M. J.....Amboy
Everett, L. E.
1442 Jonquil Terrace, Chicago
Fix, Ralph.
.....415 Illinois Ave., Wheaton
Graham, M. Y.....East Dubuque
Green, Charles E.....Lake Forest
Harting, Fred P.
....6617 Blackstone Ave., Chicago
Hill, Grant.....Solon Mills
Hitchcock, H. R.....Pecatonica
Hult, L. P.....1139-5th St., Rockford
Karsk, Arnold.....Pecatonica
King, Emmet W.....Antioch
Lillie, E. A.....Arlington Heights
Lundberg, Carl M.
.....313 N. Bluff St., Joliet
McWithy, Fred O.....Dixon
Miller, R. B.....Antioch
Newburn, D. A.....R. 5, Hoopeston
Palmer, Glen.....Yorkville
Rees, E. Richard.
.....6917 Perry Ave., Chicago
Schenk, Edw. G.
....665 Wellington Ave., Chicago
Sheen, W. J.....Antioch
Smith, Lonnie L.....McHenry
Swayer, Wilbur J.
.....816 County St., Waukegan
Turnbull, K. L.
1853 N. Green Bay Blvd., Glencoe
Webbe, W. E.....Barrington
Whipple, Wm. S.....Genoa
Williamson, R. K.
.....465 Adams Ave., Glencoe

IOWA

Lewis, Clyde J.....Woodbine
Weston, Lewis E.....Audubon

INDIANA

Lewallen, Floyd C.....West Newton

KANSAS

Grennell, Victor C.....Humbolt

MICHIGAN

Eskill, O. F.....Whitney
Maescnaere, J. L.....Menominee
Vandercook, R. I.....Linden

MINNESOTA

Fox, H. L.
....3649 Park Ave., Minneapolis
Hillier, H. B.....Brownsdale
Holcomb, W. R.....Plummer
Schroeder, F. C.....Atwater
Wiker, N. H.....Mabel

MONTANA

Bennett, C. S.....Somers
Kirk, C. S.....Salesville
Weik, Silos.....Paris

NEW HAMPSHIRE

Hunter, Roy.....West Claremont

NEW YORK

Clark, W. E.....R. 1, Darien Center
Ludham, James E.....Hewlett
Schermerhorn, G. B.....Keeseville

NORTH DAKOTA

Kent, Sherman.....Ypsilanti
Lawson, A. C.
.....R. 1, Box 46, Kenmare

OREGON

Drolshagen, A. F.....Hermiston

PENNSYLVANIA

Cooper, H. P.....State College
Ollivier, E. L.
....306 N. 40th St., Philadelphia
Rorer, Wm. A.....Mt. Gretna
Watt, H. C.
.....840 Inwood St., Pittsburg

SOUTH DAKOTA

Brown, Laurel H.....Edgemont
Bussey, E. W.....Tabor
Conklin, Raymond D.....Oldham

TENNESSEE

McKay, J. A.....Franklin

TEXAS

Foster, H. B.....Kern's Place

UTAH

Carey, J. E. L.....Fruitland